

# Journal of the Royal Society of Arts

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FRIDAY, 12TH APRIL, 1957

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## FORTHCOMING MEETINGS

TUESDAY, 16TH APRIL, at 5.15 p.m. COMMONWEALTH SECTION. '*The British Council and the Commonwealth*', by Richard Seymour, C.B.E., Controller, Commonwealth Division, British Council. The Right Honble. The Earl of Perth, Minister of State, Colonial Office, will preside. (Tea will be served from 4.30 p.m.)

WEDNESDAY, 8TH MAY, at 2.30 p.m. '*A New Grammar of Ornament?*', by Sergei Kadleigh, A.R.I.B.A., Hon.A.R.C.A., Reader in Architecture, Royal College of Art. R. W. Holland, O.B.E., M.A., M.Sc., LL.D., Chairman of the Council of the Society, will preside.

THURSDAY, 9TH MAY, at 5.15 p.m. COMMONWEALTH SECTION. '*The St. Lawrence River Power Project*', by Otto Holden, B.A.Sc., C.E., D.Eng., Chief Engineer, Hydro-Electric Power Commission of Ontario. D. Pierce, O.B.E., Deputy High Commissioner for Canada, will preside. (Tea will be served from 4.30 p.m.)

WEDNESDAY, 15TH MAY, at 2.30 p.m. TRUEMAN WOOD LECTURE. '*Science in Archaeology*', by Sir Mortimer Wheeler, C.I.E., M.C., M.A., D.Lit., F.B.A., Secretary, British Academy. R. W. Holland, O.B.E., M.A., M.Sc., LL.D., Chairman of the Council of the Society, will preside. (See special notice overleaf.)

WEDNESDAY, 22ND MAY, at 2.30 p.m. FRED COOK MEMORIAL LECTURE. '*Portuguese Painters of the Fifteenth and Sixteenth Centuries*', by Carlos de Azevedo, M.A., Curator, Lisbon National Museum of Contemporary Art.

Sir Alfred Bossom, Bt., LL.D., F.R.I.B.A., J.P., M.P., a Treasurer of the Society, will preside. (The paper will be illustrated by lantern slides.)

TUESDAY, 28TH MAY, at 5.15 p.m. COMMONWEALTH SECTION. THOMAS HOLLAND MEMORIAL LECTURE. '*The Imperial Institute*' by Kenneth G. Bradley, C.M.G., Director of the Imperial Institute.

WEDNESDAY, 29TH MAY, at 2.30 p.m. '*The English Ballet*', by Dame Ninette de Valois, D.B.E., Director, Royal Ballet. Sir Arthur Bliss, Master of the Queen's Musick, will preside. (See special notice below.)

*Fellows are entitled to attend any of the Society's meetings without tickets (except where otherwise stated), and may also bring two guests. When they cannot accompany their guests, Fellows may give them special passes, books of which can be obtained on application to the Secretary.*

#### SPECIAL ARRANGEMENTS FOR ADMISSION TO MEETINGS

In view of the likely popularity of the Trueman Wood Lecture on '*Science in Archaeology*', to be delivered by Sir Mortimer Wheeler at 2.30 p.m. on Wednesday, 15th May, and of the paper on '*The English Ballet*', which Dame Ninette de Valois will read at 2.30 p.m. on Wednesday, 29th May, special tickets of admission will be required by Fellows and their guests for these meetings.

Those who would like to attend, therefore, should make early application to the Secretary stating their requirements. Fellows will in the first place be limited to two tickets for each occasion, though a reserve list will be kept in case additional tickets can be allocated later on.

#### APPOINTMENT OF ASSISTANT SECRETARY

Mr. J. S. Skidmore, B.A., has been appointed to the Assistant Secretaryship of the Society in succession to Mr. David Lea, and will take over his duties at the beginning of June.

*MEETING OF COUNCIL*

A meeting of Council was held on Monday, 8th April, 1957. Present: Dr. R. W. Holland (in the Chair); Mrs. Mary Adams; Sir Alfred Bossom; Mr. Robin Darwin; Mr. P. A. Le Neve Foster; Mr. John Gloag; Sir Ernest Goodale; Mr. Milner Gray; Sir William Halcrow; Mr. A. C. Hartley; Mr. William Johnstone; Lord Latham; Sir Harry Lindsay; Mr. F. A. Mercer; Mr. O. P. Milne; Mr. A. R. N. Roberts; Mr. E. Munro Runtz; Sir Harold Saunders; Sir Selwyn Selwyn-Clarke; Sir Stephen Tallents; Mr. G. E. Tonge; Dr. Barnes Wallis and Sir Griffith Williams; with Mr. K. W. Luckhurst (Secretary); Mr. R. V. C. Cleveland-Stevens (Deputy Secretary) and Mr. David Lea (Assistant Secretary).

*ELECTIONS*

The following candidates were duly elected Fellows of the Society:

Anderson, Miss Emily B., B.A., Mount Pleasant, Iowa, U.S.A.  
Baker, Douglas Osborne, Folkestone, Kent.  
Bishop, Miss Isabel, D.F.A., New York, U.S.A.  
Brason, John Ainsley, A.R.C.A., London.  
Bruxby, William James, A.R.I.B.A., Liverpool.  
Burton, Raymond Montague, M.A., London.  
Calman, Melville, A.T.D., London.  
Cammaerts, Maurice P. J. N., Cheam, Surrey.  
Carlyle, Frederick William Wilson, Glasgow.  
Chaloner, John Herbert, Cheadle, Cheshire.  
Cope, Barry Gordon, A.R.C.A., Swansea, Glamorgan.  
Davies, Alan Meredyth Hudson, O.B.E., M.A., Liverpool.  
Emslie, Donald, London.  
Entwisle, Eric Arthur, London.  
Escande, Professor Leopold, Toulouse, France.  
Escott, Leonard Peter, A.T.D., Newport, Monmouthshire.  
Freedley, George, A.B., New York, U.S.A.  
Harrington, Cyril, Settle, Yorks.  
Harrison, Norman Kingsley, London.  
Hayward, Andrew George, Luanshya, Northern Rhodesia.  
Ireson, Archibald Spencer, Stamford, Lincs.  
Long, Professor Walter Kinsella, Auburn, New York, U.S.A.  
Luxton, Arthur Eldred James, Exeter, Devon.  
McCulloch, Peter, A.T.D., Biggleswade, Beds.  
Mohd, Sulaiman Noor, Cape Town, South Africa.  
Molineux, Levi, A.T.D., Melbourne, Victoria, Australia.  
Nettle, Stanley Archibald, London.  
Noy, Edward Arthur, Belvedere, Kent.  
Philpotts, Gordon Phillip, Basing, Hants.  
Russell, Raymond Anthony, London.  
Saunders, Bernard Charles, M.A., Sc.D., D.Sc., Ph.D., Cambridge.  
Seacombe, Andrew James Denis, Manchester.

Tennyson, Brian Aubrey, Nottingham.  
Thompson, Robert Snaith, Harrogate, Yorks.  
Toombs, John Alexander, Bushey, Herts.  
Ubbelohde, Professor Alfred Rene John Paul, M.A., D.Sc., F.R.S., London.  
Williams, John Hugh Hammerton, London.

The following were elected Associate Members as winners of Industrial Art Bursaries in 1956 :

Allen, Miss Eleanor Jeanne, London.  
Bate, John Charles, Streetly, Staffs.  
Dyall, Miss Doreen, London.  
Jay, Braham, London.  
Keepax, David John, Solihull, Warwicks.  
Morgan, David Laurence, Morden, Surrey.  
Timmis, Miss Judith Mary, London.

#### ALBERT MEDAL

Further consideration was given to the award of the Albert Medal for 1957.

#### 'PERILS AND PROSPECTS IN TOWN AND COUNTRY'

It was decided to make arrangements for a further Conference with a more limited scope to be held in the early autumn, to discuss certain aspects of town and country development.

#### ANNUAL GENERAL MEETING

It was decided that the Annual General Meeting should be held on Wednesday, 26th June, at 3 p.m.

#### OTHER BUSINESS

A quantity of financial and other business was transacted.

# THE CARAVAN AND ITS IMPACT ON SOCIETY

*A paper by*

*W. M. WHITEMAN, M.A.,*

*Editor of The Caravan, read to the Society  
on Wednesday, 30th January, 1957, with  
Admiral Sir Noel Laurence, K.C.B., D.S.O.,  
President, National Caravan Council, in the Chair*

THE CHAIRMAN: It is my great pleasure this afternoon to introduce Mr. Whiteman, who is a friend of mine of many years standing. He is a somewhat unusual enthusiast in that he has a very sound sense of proportion; he can see the other man's point of view. I can almost describe him as the founder of the Caravan Club, but that could not be because the Caravan Club this year is celebrating its jubilee of fifty years. However, there was a period some years back when the Caravan Club was getting very shaky. Mr. Whiteman pulled it together and has been a great influence behind the scenes ever since. To-day it is a tremendously flourishing organization of about 25,000 active mobile touring caravans.

In addition, Mr. Whiteman is the architect and almost a founder of the National Caravan Council, an organization which covers the whole of the caravan movement—the manufacturers, the traders, the users, the press, and everything else. I want to emphasize that both those organizations are very much on the side of law and order, and we are quite at one with county authorities, the Council for the Preservation of Rural England, and all similar bodies, in clearing up those dreadful caravan slums which we all see and dislike. We are completely on the side of good caravanning. For all that we have to thank Mr. Whiteman and there is not a man in the country who is more fitted to speak on this subject.

*The following paper, which was illustrated by episcopes, was then read:*

## THE PAPER

Let me re-assure you at once. The impact on society which is the subject of this talk is not an unsuspected danger on the roads but a minor social revolution. Does that sound an exaggeration? The rise of the caravan has, in proportion to its scale, the same hall marks as the rise of the railways and even the French Revolution or the English Industrial Revolution.

Its adherents speak of the caravan movement. They feel themselves in the van of progress. They have a missionary zeal to spread the gospel. Violent changes have caused violent reactions. Conservative elements that feel their own interests threatened fear and hate it, and have accused its followers of every sin from leaving litter and stealing chickens to sexual promiscuity and spying for the enemy. You will find the esoteric language, the metaphors from battle, the fervour, the *esprit de corps* marked by the cheery wave to other passing caravanners. The coupling on the back of the car is a cockade. Caravanning has its converts, won over by a blinding revelation; its martyrs, the residential

caravanners hounded from site to site; its undesirable hangers-on. There is the declaration of rights, the new morality, in which failure to empty the waste pail is a grave sin, the sectional rivalries not untinged by some intolerance towards heretics.

For the explanation of this emotional content I look back to the nomadic days of the Indo-European peoples. I think caravanning evokes a race memory of adventurous living. Similarly I think the fear and dislike of it among many house-dwellers and civic authorities have their roots in the fact that for thousands of years civilization has been enshrined mainly in houses and in settled urban communities, to whom nomads represented barbarism and danger. This historical theory is not shaken by the absence of any pre-history of the caravan. It is a modern invention, apparently not much more than a hundred years old. It suddenly appears, fully developed, in 1840, in Dickens' description in *Bleak House* of the caravan of Mrs. Jarley, the waxworks' proprietress. Probably it was developed by the travelling circuses, who must have had carts for their gear and their beasts as far back as Roman times.

It was not invented by the gypsies. Their traditional outfit was a cart and tent, as described by George Borrow. The gypsy caravan with rigid walls and roof, bed, chest, heating stove and so on, dates only from the third quarter of the nineteenth century, and seems to belong to England, not the Continent from which the gypsies reached here in the sixteenth century.

The private pleasure caravan appeared about 1880. It was part of the new cult of the open air and informal travel, and of the well-known eccentricity of the English nobleman and gentleman. To these groups were later added the intellectuals and the 'simple-lifers'. Some representative pioneers were Dr. W. Gordon Stables, R.N., writer of boys' books and later the first President of the Caravan Club, who toured England and Scotland with coachman and valet, the Duke of Newcastle, and Bertram Smith, who when he went on his unplanned tours threw away his diary and stopped his watch.

By 1907 hire business was flourishing, and owners were numerous enough to justify the formation of the Caravan Club, nearly thirty years before any other caravan organization in the world. About the same time the first caravans on motor chassis appeared. Heavy caravans of this time were very luxurious, with solid fuel stoves, easy chairs, bureaux, flush sanitation. More than one carried a piano, one incorporated an aviary, and another was connected to the telephone.

The First World War halted progress, but in 1918 caravans found their first more serious use—as mobile operations rooms in which Haig's generals could follow up the German retreat. The first trailer caravans, adaptations of wartime trailers, were seen about 1920. By the mid-thirties the horse caravans had almost been driven out by changed road conditions, and the trailer caravans had surpassed them in comfort. The Second World War is a sore point with us, for the National Caravan Council, founded in 1939, accurately forecast the rôle that caravans could play in the threatened war. It recommended, for example, the commanders' caravans which our armies were not given until the Normandy invasion (we shall probably never overtake the belief that the clever Germans



(Photograph by Charles Jones)

*An early private caravan of the lighter type*

thought of it first). It worked out a plan for a self-contained mobile hospital which could have been a godsend in the Coventry or the Plymouth blitz. But the Ministry of Supply did not recognize a caravan industry, and this repository of skill and experience was temporarily dispersed. None the less, the war showed how valuable and how varied the contribution of caravans and caravan-like vehicles could be, and laid the basis of the last ten years' expansion which has brought output from about 1,500 a year in 1938-39 to nearly 25,000 in 1956.

It will be apparent by now that the caravan is a fascinating challenge to a designer. It has a large number of parts and fittings, many obtained from outside sources, which have to be efficient separately but must be integrated into a harmonious whole. Hardly any detail can be settled without making a choice between conflicting needs, not an irksome compromise but an ideal balance, created with understanding of the needs and tastes of the type of buyer envisaged.

The caravan is a home, temporary or permanent. It is generally exposed to the weather for the whole year, and it should, if intended for living, have wall insulation comparable with that of a 13-inch cavity brick wall. It must provide the equivalent of a dining-room, a sitting-room, bedrooms, a kitchen, if possible a bathroom and lavatory. It must contain the basic furniture essential to these functions, and the whole must be as workable as the best modern flat. Seats must be placed in relation to the view from the windows, to the tables, and to the space heater if any. Beds must leave suitable gangways and be easy to make.

Steam and cooking smells must be evacuated easily from the kitchen. There should be room for two persons to wash up and dry. Lights must be placed for meals and writing, but also for lounging and reading. The layout must be efficient by day and also by night when divided up, and if children are put to bed early in one part the remainder must still provide all that the parents need.

Further, although the similarity to a house is close, most of the domestic furniture and equipment needs to be slightly different from house patterns. The beds must embody storage lockers. Some of them must convert into seats. A wardrobe may have to contribute to partitioning the van at night. In the absence of piped water, the sink must provide a good depth with a small quantity.

And all this has to be reconciled with the nature of the caravan as a road vehicle. It must be strong, to withstand road shocks and vibration, but also light, and the designer must have a clear idea of how the caravan is to be moved and, if it is to be moved by the owner, what sort of car the imagined buyer will own. Since most cars are comparatively small, the caravan must usually be so light in relation to its dimensions that its construction for adequate strength is critical. Then the weight, whatever it is, must be suitably disposed fore and aft, and left to right, and as low as possible, to gain stability.

This is not all. The maximum body dimensions permissible in this country are 22 feet long and 7 feet 6 inches wide. These are very small for a home, and the proportions are not ideal. For touring on narrow roads it may be advisable to keep the width down to 6 feet 6 inches. In the interests of good appearance and moderate wind resistance the roof must be as low as possible and the ends be rounded off, but headroom and air space inside must be adequate. The door must be placed so that the caravan may be entered from the pavement or grass verge when halted on the road. If possible, there should be a view through from the inside driving mirror of the car. The wheel boxes restrict the designer's freedom to place the furniture as he wishes.

Even now I have not finished. Since the caravan is a home, buyers demand more individuality than in a car or an unfurnished house, and a wide range of models is necessary, differing not only in price and size but in layout and aesthetic appeal, and matched to the performance of cars of various sizes. It is not surprising therefore that the caravan industry produces about 350 models from about 100 makers. A consequence of this is that for an industry with a turnover of some £10 million there is a good deal of handwork; and it is difficult to rationalize the production of components and fittings. Even where a manufacturer has mechanized production to a considerable extent, he may be driven to admit variations to please different export markets or buyers who insist on what is called a 'special', a van modified or built wholly from scratch to suit the buyer's ideas.

Consider too the materials and techniques used—timber, wood products such as hardboard, plywood and chipboard, steel both solid and sheet, aluminium in sheet, extrusions and other forms, paint, glass, rubber, linoleum, furnishing fabrics, upholstery materials, roof canvas, galvanized iron, plastics of many kinds, including 'Perspex', laminated plastics, polythene, melamine, and glass

fibre reinforced polyester resins. The industry uses jointing, welding, riveting, moulding, panel beating. It must understand body building, chassis engineering, vehicle suspension and braking, the dynamics of trailers, insulation, heating, ventilation, acoustics, lighting, liquid petroleum gases, electric installations, chemical sanitation, corrosion, wood and paint technology, and so on. And for the most part it must do this with production units too small to employ specialists. The range of industries supplying materials, components, accessories and services is correspondingly great, and with all of them there must be close liaison.

Notwithstanding these difficulties, the most efficient firms have introduced modern production methods to a considerable extent, so that, comparing 1957 models with 1939, the increase in price, for a better job, is in many vans less than 150 per cent, though materials and bought parts, most of which have risen much more, account for the larger part of basic costs; one maker has quoted 80 per cent.

With these achievements, the National Caravan Council more fully representative of the whole, and an annual convention to knit it together, the industry has grown up. Post-war conditions forced its development on a scale unpredictable in 1939. First, the housing shortage. Wartime evacuation from the towns had demonstrated the practicability of caravan living, at least for a limited period, and caravans were the main solution open to people who, when they got no help from the authorities, used their own initiative and savings to find some kind of home. The appeal was especially strong to those taking up jobs in areas of industrial expansion, where the housing shortage was most acute and newcomers were generally put last on the housing lists. The extensive use of caravans by the four-figure manpower absorbed by London Airport is a good example. To-day, in spite of the number of houses built, areas of chief pressure are still not within sight of overtaking their waiting lists. As a result we have a sizeable population—sixty or seventy thousand families is a reasonable estimate—living in caravans, chiefly where industry has grown, near London, Birmingham, Coventry, Bristol and other places, but with a sprinkling in almost every county.

Residential caravans arouse strong antagonisms. There is a belief that they do not contribute to the rates. They add to the worries of local councils and the work of their officers. They are thought to lower the value of nearby property. They are sub-consciously resented by those who are enslaved to keeping up with the Joneses. And they are condemned as sub-standard dwellings. That judgment has little meaning unless the appropriate standard is applied. The standards of a permanent house may not necessarily be the right ones for a mobile or temporary home. What would be drawbacks in a house, for example minimum dimensions and lack of connections to main services, may in a mobile home be indispensable assets. A true judgment of caravan living is obscured by the unprepossessing face that it often, indeed usually, presents to the world, since the good examples are mostly unobtrusive. Too many people are living in small uninsulated vans meant only for holidays. At many residential sites conditions are poor, for which the official attitude must bear much of the responsibility.



[By courtesy of The Caravan

*Part of a residential site at Hitchin, Herts., where all the caravans are of the same make. Trees have been planted, but have not yet grown*

Planning control is essential in this tight little island, but when an insatiable demand, born of a pressing human need, outstrips the supply of land, it creates a monopoly. The monopoly for existing site owners has led to the evils of premiums, evictions without good cause, and handsome profits reaped without necessarily providing adequate facilities or elementary courtesy. This monopoly value is so high that it is to the credit of the site trade that so many operators do not exploit it ruthlessly.

Further, because land on the fringes of towns is scarce and often earmarked for green belts, law-abiding applicants for site permission are almost automatically refused, but the 'wide boys' who defy the law can quickly gather a group of caravanners desperate for any sort of refuge, and can then count on at least a year or two's toleration because there is nowhere else to send these families. When permission is granted it is normally for three, five or seven years, so that no developer, unless he gambles on renewal, can afford to lay out the capital that will make a good site. This extraordinary state of affairs is due to fear of this unfamiliar growth and to thinking of a caravan site in pre-war terms as a field in which caravans are temporarily placed instead of as a major undertaking requiring perhaps site levelling, drainage, road making, electric installations, street lighting, lavatory and ablution blocks and other decidedly permanent works. What would we think if the builder of a housing estate, a factory or a hotel were given permission for five years and told he must then pull the lot

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down and restore the land to agriculture? Would the development be good, or would it be scamped and shoddy?

I am not here to preach the cause of caravanning but to paint the picture as it is. Otherwise I would have more to say on possible improvements. Returning to the assessment of caravan living, I do not support the claims made for caravans as family homes. There really is not the space and privacy for bringing up children in the desirable conditions, though that criticism would be reduced if the Minister of Transport would allow an extension in length up to 27 or 28 feet. We need not go up to the forty or fifty feet of the Americans. Another five or six feet would permit very much more successful layouts. But it would be better if all who wanted houses and whose needs were best met by houses could get them at suitable rents.

The residential caravan demand, I think, is likely to settle down eventually into three main groups. First, there are the newly-married couples who have little money for house and furniture (remember that the caravan is fully furnished) who both go to work, so that housework must be reduced to a minimum, and who may not know exactly where they will eventually make a permanent home. And then there are the retired couples, already quite numerous especially in well-run sites in the southern counties. They also want to cut out unnecessary housework and gardening, and having sold a house to a larger family they have the funds to buy a good caravan and a car, and they lie up for the winter but move around in the summer. Sooner or later some architect will offer them the two-unit home consisting of bathroom, spare bedroom, store room and garage



[By courtesy of The Caravan

*A riverside caravan site at Houghton Bridge, Amberley, Sussex*

as a permanent block, with a canopy under which can be pulled the main living room, bedroom and kitchen in the form of a caravan. Who knows? To complement that we may find hotel units consisting only of dining and other public rooms, the guests bringing their own bedrooms and private sitting rooms on wheels. Already the Scottish hotels have been officially advised to increased turnover that way. The practice of having thousands of hotels and boarding houses empty for more than half the year, and private houses empty for some weeks, may in future years seem economically crazy.

Third, there are the people who need a house that moves. No provision of married quarters will kill the attraction of a caravan home to an Air Force officer who is liable to be posted elsewhere at short notice. No other temporary form of housing serves so well for mobile labour working on a Scottish hydro-electric power scheme, or allows a new atomic plant to come into operation quickly, as the Americans found during the war, when new war factories were rushed up in the West and the labour force was installed in a matter of days. These are actual examples of mobile residential homes. We also find that in this complex post-war world Britain needs to make maximum use of its manpower with special skills, in techniques or administration, and many people are taking to caravans so that they can enjoy some home comfort and yet move rapidly to wherever they are most needed. Before the war the roving caravan residents were the showmen, the stage artists and a few commercial travellers, writers, and so on. Now we have technicians, consultants, lecturers, inspectors, organizers, salesmen of all kinds on wheels. Their numbers are still small, but they play a part in the national life disproportionate to their number. There are the beginnings of official recognition of this in the provision of town sites for transient caravanners, as at London, Lincoln, Winchester, Tewkesbury, Exeter and elsewhere, where permanent residents are forbidden.

Another important sphere for the caravan was opened up by the increased post-war demand for holidays away from home, due to the wider distribution of money. The numbers of workers receiving holidays with pay, I believe, had more than doubled. Some hotels were out of action, no new ones were being built, nor were Butlin-style camps. Caravans for letting were the only new provision for this enlarged public. They did not need building licences. They had the advantages of being completely pre-fabricated and of being capable of use, if necessary, with very little work on the site. Further, the freedom from formality, fixed meal times and watchful landladies, the low charges, the proximity in most cases to the beaches, the happy gregariousness of the camps, and the ease with which friends could be made there were suited to the popular taste. Finally, the capital for this expansion could be found painlessly, because the caravans are normally owned by small investors, or owner-users who let to help with the purchase, while the site owners have to finance only the site development.

Some holiday counties, such as Devon and Cornwall, were quick to see the importance of this trade and made provision for its expansion. Elsewhere it has expanded without guidance and sometimes in the teeth of opposition. Some of the results are regrettable. 'Slums', is not too strong a word to use of some areas;

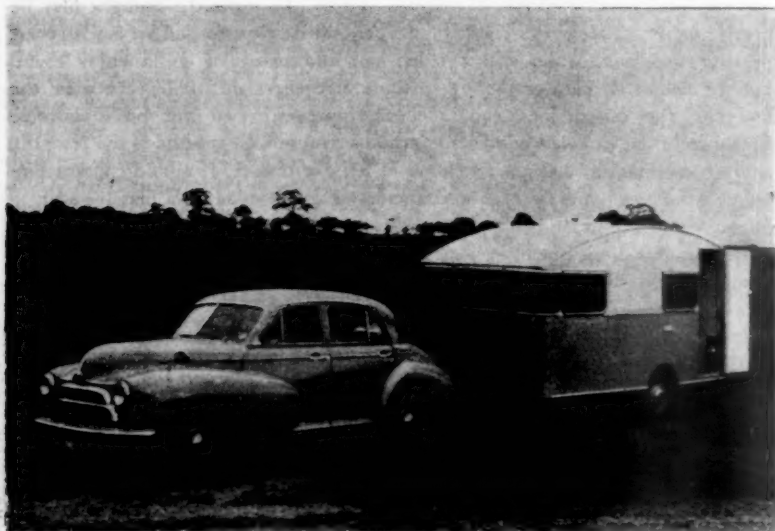
parts of the North Wales coast are among the worst. Hundreds of low-grade caravans, old' bus bodies and shacks are huddled together with poor services, and the site operators make good profits while ploughing hardly anything back in improvements. These results are not inherent in caravans, they are the result of growth outstripping understanding and, at first, the controls. Under the present public-health and planning controls there is no reason why caravan sites elsewhere should develop on these lines. In fact, even in areas which were largely blighted before this legislation was passed, a great deal of cleaning up has taken place; in Lincolnshire and on the north Kent coast, for example. The weaknesses to-day are mainly æsthetic. The answers to the public-health and other practical problems are known, though not everywhere applied; the task is simply to bring the worst sites nearer the standard of the best. It is in careful siting, imaginative layout, landscaping, tree planting and taste that most is still to be learned.

It must be admitted that large stretches of the coastline have from some points of view been spoilt by the new caravan colonies, but the value to the people and the nation of these inexpensive, informal, open-air holidays for thousands of people is very great. According to the British Travel & Holidays Association, two million people in 1955 (the last year analysed) took their holidays in caravans. One has only to visit, say, Bognor or Ingoldmells or Weymouth at a summer weekend and see the families arriving and leaving, with their children and grandparents, their suitcases and brown paper parcels, to realize what this new holiday accommodation has meant in human happiness. Since half the population, about 25 millions, still get no holiday away from home, it must be expected that caravan letting will continue to increase rapidly. To some the thought may be horrifying. It is easy unthinkingly to compare the newly crowded areas with their pre-war seclusion, when only the leisured and moneyed could enjoy them, but we cannot go back to the old extreme differences in privilege between the few and the many. The consequences, however, need not be disastrous. Fortunately the secluded holiday in natural surroundings appeals to the few; the rest are sociable and like the amenities of holiday resorts. If a bold constructive policy is followed, and holiday accommodation is provided on a massive scale—caravans and cabins and tents—on the coastal stretches that have fair beaches and communications but little landscape beauty, much of the threat to the more beautiful areas will be drained off. What is impossible in the face of such a demand, as well as selfish, is to resist the pressure everywhere.

A smaller problem is to prevent the letting vans squeezing out the short-stay tourist. Touring caravanning yields the highest social values. No reliable statistics are available in caravanning, but the Caravan Club has about 15,000 families all more or less mobile, and the total must be four or five times that. One could expatiate on how the caravan helps its owners to know the country in all its regional variety, on the corrective it provides to the pressure of urbanized community life, not only in itself but in all the activities with which it blends so well—walking, climbing, fishing, boating, nature study, archaeology. But I prefer to stress the bridge to the gap between our two nations—townsmen and countrymen. The town family that stays for a while on a farmer's land, but

brings its own home, of an exciting kind, to which the farmer's family can be invited, understands the life of the country and its values, gives something in return. And in the growing taste for Continental touring we have a small but not negligible force for international understanding. Caravanning on the Continent you meet everyone from the mayor to the labourer in their own setting, not that of a cosmopolitan catering trade. More than 3,000 caravan families went to the Continent in 1956. It is a pity that communications with that beautiful touring ground, Ireland, should not be so good. More should be done to bring Continental caravanners here. We are the only important tourist country in Europe that does not distribute guidance and lists of sites to potential visitors with caravans or tents, except for what our national unsubsidized clubs care to do.

A caravan is not strictly a vehicle, but a functional unit mounted on wheels so that it may be moved readily. It comes into use only when sited at the end of the journey. A whole range of other functional units involving similar problems of planning and construction is produced by the industry: the mobile bank, which allows the Bank to open once a week in remote villages without the waste of a building on the other six days; the school dental clinic, which arrives in the school playground and saves the multiplication of premises and equipment, or a great amount of travelling time for the children; the mobile shop; the cashier's office for electricity or gas undertakings to collect their accounts; the mobile library, which has proved valuable in London boroughs, not only in rural areas; the mobile showroom used for displaying to trade buyers such



[By courtesy of The Caravan

*A popular light-weight touring van produced at a low price in quantities*

things as stationery, confectionery, hardware, or clothing; the display and hospitality unit adopted with enthusiasm by exhibitors at the Farnborough Air Show or agricultural shows, which pays for itself quickly by the saving of erection time and materials used only once; canteens; first-aid posts; newspaper offices and darkrooms for covering outside events; broadcasting studios and control points; auxiliary police stations; X-ray units; beauty parlours; opencast coal offices; laundries; lavatory blocks for crowd meetings; contractors' offices; recruiting offices; workshops for racing motorists; mobile chapels for evangelists—these are some of the uses to which the caravan principle is applied.

In the undeveloped countries overseas these special-purpose trailers are even more useful. In the oil fields, the African colonies, the outbacks of Australia, special caravans are in use for prospecting, road and railway construction, irrigation and hydro-electric schemes, soil testing, insect plague control. There is even a mobile factory comprising British, American and Dutch vehicles which can move into the oilfields and make and fill oil drums on the spot. It illustrates the most advanced application—the caravan squadron, including office, dormitory vans, ablutions van, canteen, kitchen, stores and first-aid unit, and generator plant.

A recent speaker in this room described the motor car as an extension of the personality and even the body of twentieth-century man. The special purpose caravan is equally an extension of twentieth-century industry, commerce, administration and social activity. We are seeing only the beginnings of it.

If this country, the pioneer of both the horse caravan and the trailer caravan, is not far out in front of all the rest, it is not for lack of experience, knowledge and enterprise, but because the American Government and American business have been quick to see the value of the mobile home and the special purpose trailer. The American Government has bought tens of thousands of caravans during and since the War. Their industry has had priority in scarce materials and privileges under hire-purchase restrictions. State funds are assisting the development of caravan sites. The banks are happy to back the industry.

Britain, however, comes easily next in the size of its industry. We stand first in the design and production of caravans that are easily mobile, and easily first in exports. The industry, though divided into a large number of producers of small average size, is moving from the empirical stage into that of research, planned production and co-operative development. I believe that, provided its potentiality is not frustrated by restrictions springing from prejudice, in addition to the inevitable limits set by land shortage or the width of our roads, the caravan has a much larger role yet to play in the life of the country. It will be in the national interest if the future growth is guided better than that of the last ten years has been.

#### DISCUSSION

MR. A. POWIS BALE: There are two points on which I would like to take Mr. Whiteman up. In the early days of the caravan, the society pioneered by Captain Robert Falcon Scott and General Baden-Powell as a sideline to the Scouts, the 'Camping Club' was formed. Before any caravan clubs started, a number of members of that club ran caravans. After the 'Caravan Club' was founded, some of the members

started a caravan club called the 'British Caravaners' Club'. That is much smaller than the main Caravan Club. I, being the honorary motoring officer of the Camping Club, thought I would take the opportunity of putting a little emphasis on the foundation of caravans.

Towards the end of his paper, Mr. Whiteman referred to the need to prevent letting-men from squeezing out the short-stay tourist, and said that touring caravans yield the highest social values. That needs some explanation. I know what he means and I agree with him; but I have had considerable experience of camping and of Australian and British caravanning. There is the person who takes his caravan to the Continent and thinks himself a little bit ahead of the one who stops in England; the person who stops in England and is mobile, of course, treats caravanning as something akin to a sport, and therefore he thinks himself rather superior to the residential man. Therefore, I think we have got to put the emphasis on 'good caravanning'. Some of the people in residential caravans are simply abominable and they would be slung out of many of the sites. They would be excluded from the caravan and other sites owned by the Camping Club, because we have no competitors in that particular line. Everything is cooperative and very much cheaper than commercial sites.

The other point regards trade vans. In 1916 there was a really excellent example in the trade of a functional caravan, which I took out to France in the Royal Flying Corps. That was a four-wheeler trailer, in which the whole of the photographic developing and printing was done. The N.C.O. and his assistant used to sleep in the van.

DR. L. M. J. KRAMER: Does the lecturer consider that the caravan industry has become mature enough to set up its own research organization? Many problems no doubt await solution by this form of concerted action. To take only one example: colour. Colour has been discussed often. There are sound technical reasons why white or very light colours are correct in hot weather and dark ones in cold weather. Yet, with the experience of bad artistic development in housing, it can be argued that care over caravan colours could go a long way to avoiding the bad examples set in the sphere of housing and by a relatively cheap method do much to mitigate the unsightly, disharmonious caravan collection one sees. It would be a quick way to change much ugliness and remove an important source of antagonism towards caravans, even if it meant a (doubtful) slight decrease in comfort.

There is also the road-safety aspect of the towing of trailer caravans. I have only had a few years' experience of this great art, which Mr. Whiteman has dubbed towmanship. My experience has been the cheery wave of the hand, which I warmly reciprocate. My experience also is that you get much greater courtesy and consideration on the road from the professional driver—the lorry driver, the bus driver, the coach driver, than you do from the average touring motorist. That is partly, of course, a psychological problem. A lot can be done to mitigate it by the way one tows. It is also partly, I think, a fact that the touring car, with its high-speed capacities is growing and developing on a road system which is totally inadequate for it. We can do much good for the movement by our towing methods. Does the lecturer think that enough has been done to strengthen the safety of towing a caravan?

The conscious and emotional heat that is developed over caravanning should be turned in the right direction. If only the same feeling had been canalized concerning the motor car over the past thirty years! We might not then have reached the appalling situation we have at present, when we tolerate the murder of thousands of people on the roads annually and are hardly stirred by it. Our emotion, our feeling on the subject has almost been dulled into nothingness. The caravan movement in its manifest aspects should strive to generate the right kind of emotion to enhance the general social value of this new phenomenon, which is not going to disappear and which must be co-operated with. Anything the lecturer can do in that direction would be a benefit to the whole nation.

THE LECTURER: On the question of research, we are a long way short of having a fully-fledged engineering workshop and laboratories such as some industries have on a co-operative basis, but a little beginning has been made. The National Caravan Council has a Design and Development Committee, in which leading technically well-informed members of the trade get together and pool their ideas and thrash out the solutions to problems for the benefit of all the rest. They have made quite a number of valuable recommendations and they have co-operated most usefully with outside bodies like the British Standards Institution and the Road Research Laboratory and insurance companies. For example, some very valuable recommendations have been made on the fitting of solid-fuel stoves, which is where fires generally start in caravans. So I think there is quite a promising beginning there, but anything more ambitious than that will require funds.

On the question of caravan colours that, as the speaker said, has been discussed almost *ad nauseam*. It has cropped up almost every year, I should think, since I came into caravanning. I must reject the idea that a caravan is inherently so hideous that it has to be camouflaged or hidden. I think it is simply that the thing is fairly new. In one hundred years' time I believe we may recognize that one or two caravans, nicely placed in a landscape, will be in the eye of an artist an additional feature of interest to that landscape and we shall think they are just as appropriate there as a yacht is out at sea. I would not object at all to white-coloured caravans in these circumstances. During the war, Air Vice-Marshal Joubert was asked on the wireless if people should camouflage their caravans, and he said no. He said the English landscape from the air is full of spots of white detail like that and that camouflage always looks wrong and is rarely successful. But I would agree that, where you have masses of caravans in large group sites in the landscape, very light colours do present a difficulty; what to do about it is something even more difficult. Surely we do not want dictation on that. You cannot dictate what colour people should paint their caravans, especially when they are moving. For a caravan that is one month in really green country and then goes to a different area where the background tones are quite different you cannot decide on the shade of green to choose. I have seen greens which clash horribly with each other, but we have got to the point where we are stressing that caravanners should be well mannered, including in the colours of their vans. I do not think the latter should be dark, because that makes a fantastic difference to the heat inside. I have actually measured a difference of twenty degrees in temperature between one caravan painted cream and the identical caravan painted dark green. I think that is too much to ask us to do, and I do not think the gain is comparable to the loss. But I do think we should avoid purples and shrieking pale blues, pinks and, perhaps, absolutely cold whites. It is a question of finding more natural colours. It is only a question of manners and I think it is something for education. We are doing a little propaganda on those lines.

Road safety has been very much in the minds of the organizations and the press. For instance it is one of the principal aims behind the British Caravan Road Rally which the Club has been running for three years, and tests of breaking and stability at speed, acceleration and manoeuvring and things like that are carried out. The National Caravan Council has carried out braking tests with the Motor Industry Research Association. The Caravan Club some years ago offered a Fifty Guinea prize for papers on the art of towing and quite a lot is going on in that direction, looking for safety. I think that the evidence shows that the caravan outfit, while to some people it may look a monstrosity, is in fact extremely safe. They are not very often involved in accidents, and the road tests which my magazine carries out are a further contribution to safety. We find that provided you use a suitable car there is practically no caravan on the market, up to at any rate thirty cwt., that on a track test will not do fifty miles an hour in perfect safety. In fact, that is the speed that we recommend the industry to aim at, because that is what is wanted for the export market; but it is not allowed in this country.

I will agree with the speaker that you do get very great courtesy from the lorry drivers; I would not say that of the coach drivers and long-distance bus drivers. They are not anything like as good as the lorry people. The attitude you get from the private motorist varies enormously. Some of them loathe caravans, especially if they have got stuck behind them on a road and they cannot see, but I have found myself that they respond very generously to the right behaviour towards them and—I think that I will plug this a lot—it is very valuable to be able to see right through your caravan, if you have the end windows low. I find that, if I can do that, I see a car coming up behind; I can see when it wants to pass; I can judge what acceleration it has got, and when it can safely pass I give it the right signal and it overtakes. I would really say about one in two of those cars either wave their hand or else sound the horn as acknowledgment. You get a very good response when you show them a courtesy.

MR. SAMUEL ALPER: Is there not some danger in this attitude of thinking there is a peculiar breed of Englishman who is a caravanner? Surely, by and large, he is a normal person who perchance finds himself in a caravan, either for living or for holiday use? Would we reasonably expect people who build nasty red houses on attractive coastal sites to paint those houses green to match in with the countryside? I do not really see much difference between that and the caravan.

THE LECTURER: First of all, I am not arguing that we ought to be freaks and fanatics and peculiar people. I am suggesting that that is what we look like from the outside, but we are not peculiar in that—I think it is part of the vivid individuality of the British people. After all, a perfectly ordinary citizen in a semi-detached suburban house is, when he gets behind the wheel of a motor car, something quite different; once he gets on to his hobby, he is a very different person.

I agree there is no difference between what should be expected of a caravan and what should be expected of a house. I think it is simply that all of us, whatever we are, owe it to our fellow men in the country we happen to live in to behave with reasonable manners.

MISS D. FLEYDELL-BOUVERIE: I am a county councillor and a district councillor, and one of those awful planners. We have in East Anglia, of course, the caravan site with which Mr. Whiteman is very familiar, the American type. We try if possible to insist on screening, again because of the question of colour. Is it really absolutely scientifically proved that you cannot have your caravan the same kind of colour as you have your car? One spends half one's life in one's car, surely in the same conditions as in the caravan. Why should not the caravan be painted to match the car which is towing it? Is it possible that the basic colour we have our cars would really, if used for caravans, add much to the heat in them?

Surely those sites which Mr. Whiteman has shown us are not things of beauty. I cannot help thinking that they spoil those lovely fruit trees which we saw. I may be prejudiced, but there is nothing comparable, in the layout of any of those caravan sites which we saw, to even ordinary car parking.

THE LECTURER: I am perfectly happy that Miss Pleydell-Bouverie should present her argument to caravanners and do her utmost to persuade them. I am only opposed to dictation. If she likes to write me a letter I will publish it, but I do think that this is a matter for education and individual good manners, persuasion but not force.

MR. T. F. THOMSON: My impression is that the picture that Mr. Whiteman has presented is one of rather an antediluvian state of caravan society at this point in time. We hope it may be considerably advanced in the future by improved caravan design. There should also be an enormous improvement in the design of sites, their landscaping and maintenance. Those which Mr. Whiteman has shown us on the screen are, I think, with a few exceptions, perfectly horrifying. He said that it

depends very much on the taste of the site operator as to what sort of conditions pertain on the site. I do not think that, if it is left to the site operator, you will ever get any sort of conditions on a site which are human and civilized; because the amount of money which is obtainable from a site is such as to tempt most people, if not all, to cram the maximum number of caravans on a site. You never will get the most satisfactory conditions unless there is a very much stronger control over the layout and management of sites. Many of them are in existence and therefore beyond control because of existing use right, and that possibly applies to the one Mr. Whiteman referred to as being a District Council site. It was probably a District Council site long before the advent of land-use control. The District Council, which is responsible to the ratepayers, must of course act as a trustee and secure the maximum return from the site.

My impression is that the deterioration of a site is the important thing to watch. It may start with the best of intentions but can degenerate into something which is really sub-standard housing, which Mr. Whiteman in his paper tried to suggest that it was not. There are places where, for instance, a family is living in conditions in which the two parents live in one caravan, and do their own housework; the children live in another caravan and are told to look after themselves. That is an anti-social development which I think is quite wrong. The police, I think, are unhappy about certain aspects of the matter where sites tend to get out of control and you get a lot of people in them who are rather nomadic types who move on from one place to another. They are the successors to the original gypsy. It is difficult to secure a really satisfactory control over caravan sites. I believe in this movement, which cannot be stemmed, and I am not against it, but I do agree that a lot more attention wants to be paid, by everybody concerned, to the question of the design of the caravan and its siting. The design of the motor car is far and away above that of the caravan, and the two things do just not match at all. And as far as sites are concerned we have just not begun to lay out a site in a civilized and decent manner.

THE LECTURER: First of all I would like the speaker to consider that what we have been looking at in the last ten years is a period of fantastic growth. The caravan movement has grown twenty times in ten years and no activity which grows as fast as that will avoid creating strains. It always outruns public opinion and even the proper standards within its own ranks. So this is an abnormal period. I have admitted frankly and I am perfectly ready to admit the evils on sites and other things, but I do say they are not necessarily inherent in caravanning or an example of what we may find when the thing has reached some stability.

As regards photographs of sites I do beg you to believe I have not for a moment been attempting to offer you a selection of photographs which do justice to sites. More than half of those offered were picked out as bad examples. In fact, it is almost impossible to put in a small photograph anything which does justice to the best sites. You can only appreciate them by walking round them. Aerial photographs in particular give you a very wrong impression, and I do think that you cannot form an opinion of what caravan sites can be like unless you walk round the best of them. It cannot be done by just a single glance, but I perfectly agree, and I have said so many times in print and in speech, that the majority of existing sites are bad, especially the residential ones. I certainly have not argued that there is no sub-standard living in caravans there too. I would agree that the majority of residential caravanning is bad, below any sort of standard, whatever the equivalent standard is. All I am saying is that it need not be. Where you find it is bad, it is because you have an unsuitable caravan, or it is overcrowded or something of that sort, but it does not always have to be like that.

Actually the Herne Bay Urban District Council has two sites, one to the west of the towers, which is a pre-war one and is not very good; the one I showed you on the screen is a quite recent post-war one, so that is not subject to any pre-war conditions.

I do agree though that a local authority is just as much under a compulsion as a private-enterprise site operator to screw money out of the site, so that the municipal operation of a site is no guarantee that it is a good one. Personally, I prefer to leave the local authority as the watch dog, but not let it be the body that stands to get a profit out of the site.

On car design, I really do not follow the speaker in why he thinks that caravan design is enormously behind car design. They are serving quite different purposes. I would submit that the best of present-day caravans are in every way as well suited and designed for their purpose as are cars. I think on the whole they are rather better, but that may be prejudice.

MR. L. C. JOHNSON: I speak only in a private capacity, but I do happen to be chairman of the Public Health Committee of a local authority and I know something of the immense problem at first hand. I am glad to hear the lecturer say that he does not want public authorities to take over and run the sites. The average local authority would very much rather not have the caravan site than have to make one. The public health problems are intense. The amount of work which would have to be done by public health inspectors, the clearing of cess pools, and other forms of proper sanitation, are numerous. You want to be sympathetic towards local authority proper sanitation, are numerous. You want to be sympathetic towards local authorities. The local authority in planning does not always want to let a site for more than five years. That may be for a very good reason: this question of permanent residential caravan sites is not yet absolutely established in this country, the housing shortage being the main reason for it, but we all live in sincere hopes that the housing problem will be solved in a few years time. If local authorities have expended huge sums of money in laying down proper sites and proper sanitation it may find those concrete sites, in not very many years' time, horrible derelict dumps. British people are as prone as any one to throwing their rubbish on to an open space; we have had travelling showmen who have caravans worth £2,000 or £3,000. They pitch on a site unauthorized, they bring their own television apparatus, and television electricity generators and everybody within the neighbourhood has their own television completely upset by the generators which are established by the caravan rebels. During occupation they foul the site abominably.

I think most local authorities are aware of the necessity for looking at this problem from a realistic point of view. I would like to see understanding between the caravan industry and caravan lover and local authorities. If we could each see each other's problems and be tolerant with one another I think we should get a long way, but the caravan owner must help himself. He must inculcate a code of behaviour, particularly in sanitary matters, which commends itself to the local authorities, and does not put them into an extraordinarily difficult position in law in having to take action against statutory nuisances. I think we can get along together if we all work in a very happy educational frame of mind.

THE LECTURER: I hope that nothing I said implied that I was hostile to local authorities. I have always taken the view, and I think all the organizations take the view, that we have to work with them; we want to work with them and we try to see their point of view. I do recognize that they have enormous problems, which was exactly what I meant when I talked about the growth of twenty times in ten years. The desire to co-operate with them was, I think, very well shown in 1947 when the Caravan Club invited the Town and Country Planning Association to join in convening the Movement Dwelling Conference, at which we had a wonderful collection of local authority people who did a very valuable piece of work. I am quite sure that co-operation of that kind is very much wanted.

*A vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman, the meeting then ended.*

# MINING EDUCATION AND TRAINING

*The Cadman Memorial Lecture by*

*I. C. F. STATHAM, M.Eng., M.I.M.E., F.R.I.C.S., F.G.S.,*

*Emeritus Professor of Mining, University of Sheffield,  
delivered to the Society on Wednesday, 6th February,  
1957, with David Renton, T.D., Q.C., M.P.,  
Parliamentary Secretary, Ministry of Power,  
in the Chair*

THE CHAIRMAN: Lord Cadman of Silverdale is best remembered as a great figure in the petroleum industry, but he was also a great mining engineer, much interested in safety problems, and I am told that his reports on mine ventilation, which were prepared with Dr. Haldane for the Royal Commission on Mines, whose report was published in 1911, were an outstanding contribution to one of the most important problems in mining health and safety.

Professor Statham has devoted his life to mining and its problems. Under his charge the mining department of Sheffield University has become one of the most important in the world. Professor Statham has held many important positions and earned many distinguished awards in connection with mining engineering. There is nobody better qualified than he is to lecture on this important question of mining education and training, which has such a close relation to all the difficult problems of safety and health in mines. Perhaps I should take the liberty of mentioning that, as Parliamentary Secretary to the Ministry of Power, I have by tradition *ex-officio* a special responsibility for health and safety in mines, and that is why I am very glad to have the privilege of taking the chair on this occasion.

Last year there were fewer men killed and seriously injured in the mines than ever before, which was a result of the work done by people like Lord Cadman and Professor Statham in the way of scientific research and advice, and the way that that work has been carried out by our mines inspectors and in recent years by the National Coal Board; and I would like also to mention that the trade unions have an important part to play in the matter, and have indeed played it well with ever-rewarding results. But there is still much to be done. There were over 300 men killed last year and there is no doubt that the education and training of the men themselves is a thing which matters most in securing the further improvements at which we must aim.

I therefore have great pleasure in calling on Professor Statham to deliver the Cadman Memorial Lecture for 1957.

*The following lecture was then delivered:*

## THE LECTURE

The invitation to give the sixth Cadman Memorial Lecture is an honour which I appreciate very highly for several reasons, but first and foremost on account of the high esteem in which the late Lord Cadman is held in the mining industry. In spite of the fact that his later years were devoted primarily to the

petroleum industry, John Cadman was trained as, and was first and foremost, a mining engineer who made outstanding contributions to the mining industry. Previous lecturers have mentioned his many notable contributions to the particular subjects of their lectures, but none of these were more valuable than those to mining education which marked the early years of his career.

In view of later references to mining scholarships it is interesting to record that Cadman was the first holder of the Staffordshire County Mining Scholarship with which he entered the University of Durham in 1896, and proceeded to the degree of B.Sc. Later, he gained the degree of M.Sc., and subsequently was awarded the high degree of D.Sc. After experience as a colliery manager and mines inspector, as Government mining engineer in Trinidad and work for the Royal Commission for Safety in Mines, he was appointed in 1908, at the early age of 31, to the Chair of Mining at the University of Birmingham, at which University I had just completed my tenure of the Staffordshire County Mining Scholarship.

He was later President of the Institution of Mining Engineers and in 1926 was awarded the highest honour that institution can bestow—the Institution Medal for distinguished services ‘in the advancement of scientific, educational and professional interests to the Mining Engineering profession’. As Professor of Mining at Birmingham, he did much to enhance the profession and left his mark upon mining education which throughout his later years, in spite of his preoccupation with other important matters, always had a warm place in his heart. I am sure he would agree that the subject of mining education and training should form the subject of a lecture dedicated to his memory, and that he would have rejoiced in the progress made in recent years.

The present system of mining education and training is a product of the twentieth century and largely of the last quarter century or less, during which enormous strides have been made. At the end of the nineteenth century mining training as we know it to-day was practically non-existent and facilities for mining education were few.

Although a number of the universities had already included mining in their curricula, university education in mining was reserved mostly for the few who could afford to pay for it and who, by birth or other circumstances, were destined to become mining engineers, mine managers or senior mining officials, and the number of mining graduates was small and insignificant. Certain local authorities in mining areas offered organized courses of instruction in mining and allied subjects, mostly held in the evenings or on Saturday afternoons during the last quarter of the last century. They also opened the doors of the universities slightly by the award of scholarships tenable in mining. These developments were, however, designed to assist those aspiring to official positions in the industry. The need for education and training for the rank and file of the workers in the industry was unrecognized or overlooked. With the growth of the size of mines, the increasing complexity of mining operations, the advent of mechanization which was then in its infancy, the general rise in the standard of education and living, and the rising aspirations of the community at large, this

state of affairs could not continue. Furthermore, legislative enactments, introduced from time to time, demanding statutory qualifications, influenced the spread of mining education and training in certain directions.

Beginning with the Coal Mines Regulation Act of 1872, which laid it down for the first time that all mine managers must possess certain qualifications including a Certificate of Competency, the principle of statutory qualification has grown until to-day it extends throughout the industry. Thus, in the Coal Mines Regulation Act of 1887, the requirement of statutory qualification was extended to the undermanager, whilst the Coal Mines Act of 1911 brought in the same for the mine surveyor, the deputy and the shotfirer. In 1945 the Coal Mines (Training) General Regulations introduced the provision that no person may be employed in or about a mine on any work, except under competent supervision and instruction, unless and until he has been adequately trained and is competent to do the work without supervision and there has been issued by a duly appointed training officer a certificate that such person has duly received such training. More recently, the Coal Mines (Mechanics and Electricians) General Regulations 1954, have laid down statutory qualifications for the engineering staffs of mines, including mechanical and electrical engineers, mechanics and electricians. This rapid survey of the purely statutory requirements serves to indicate the scope and magnitude of the problem of education and training in the mining industry to-day.

An idea of the numbers involved may be gained from the fact that in 1956, with about 703,000 persons employed in our coal mines, of which about 559,000 were employed below ground and some 144,000 on the surface, the number of persons, below the rank of area general manager, required to possess technical qualifications was over 72,000. These were made up roughly as follows:

Area production managers and deputy A.P.M.'s.	...	...	...	150
Group managers and colliery managers	...	...	...	1,000
Undermanagers	...	...	...	1,000
Electrical and mechanical engineers above colliery level	...	...	...	450
" " " " at " "	...	...	...	1,900
Mechanization and planning engineers	...	...	...	610
Surveyors	...	...	...	1,100
Overmen (4,500), deputies (21,500), shotfirers (10,000)	...	...	...	36,000
Mechanics and electricians	...	...	...	30,000
Coal preparation engineers	...	...	...	125
				<hr/>
				72,335

With the exception of the last-named group all these are required to hold statutory certificates under the Mines and Quarries Act, 1954, and all remaining employees are required to be given preliminary training as already mentioned.

#### RESPONSIBILITY FOR EDUCATION AND TRAINING

Apart from the numerous requirements regarding education and training

imposed by Regulations under the Mines and Quarries Act, 1954, the National Coal Board has, under the Coal Industry Nationalisation Act, 1946 (Section 1 (2) (f)) a statutory duty to advance the skill of persons employed or about to be employed in the industry and to provide themselves and to assist others in the provision of, facilities for training, education and research. In these matters the National Coal Board must work on lines approved by the Minister of Power, both of whom are assisted by advice from various interested bodies including the Institution of Mining Engineers, the National Association of Colliery Managers, the National Union of Mine Workers, and like bodies.

It ought, however, to be mentioned that much of the present structure for education and training has been built on foundations laid or planned by the earlier mine owners, acting on advice and recommendations from the various professional institutions associated with the industry. A number of the more enlightened coal owners introduced education and training schemes long before they became compulsory, as well as awarding university scholarships to deserving youths. I pass now to consider the requirements of the various classes of workers and officials, beginning with the rank and file.

#### PRELIMINARY TRAINING OF NEW ENTRANTS

##### *Juvenile entrants*

During the five years 1951 to 1955 inclusive, an average of about 21,300 juveniles under 18 years of age entered the service of the National Coal Board each year. It is anticipated that in the foreseeable future the Board will be able to absorb a larger number, estimated at 25,000 to 30,000 per annum. All such entrants are required by regulations to undergo a course of preliminary training, in accordance with a scheme approved by the Ministry of Fuel and Power, (now the Ministry of Power) occupying at least 264 hours, of which not less than 132 hours must be devoted to practical instruction and demonstration of mining operations, and not less than 132 hours to attending classes relating to mining operations and other subjects of educational value, and in physical training. At least half the practical training and demonstration, that is, 66 hours, must be spent in instruction and demonstration underground in a suitable part of a mine.

In practice the preliminary training course is longer than this minimum duration and covers 16 weeks, during which time the boys are attached to a training centre. Training is carried out jointly with the Local Education Authority and the boys attend about half time at the local Technical College where they are taught English, Current Topics, Mathematics, Drawing, Mining science and operations and Physical training. They spend the rest of their time on practical mining instruction, mostly in underground galleries set aside for the purpose. They also pay visits to other mines to see various mining operations in progress. There are at present sixty non-residential group training centres for boys who reside at home or in lodgings and, in certain coalfields (Durham and Scotland), there are three residential training centres.

Boys for employment on the surface are given at least five days' training,

after which they work under strict supervision for at least twenty days or until qualified for the work upon which they are to engage.

The welfare of youths entering the industry is under constant review by the Ministry of Fuel and Power and the National Coal Board. The latter body in 1949 introduced the so-called Ladder Plan, to which I refer later, and in its Report for the year 1952 outlined its policy for youth. This constructive policy stressed the need for schemes of progressive employment and planned experience to ensure satisfactory work and progress for all boys in the industry. It confirmed that day release for technical education would be offered to all boys likely to benefit therefrom; it sought to make mining attractive and worthwhile to boys leaving school and placed upon management at all levels responsibility for giving effect to the policy. The Board is constantly trying to improve the training under the scheme and at present a working party is making a comprehensive review of the training arrangements and employment of entrants under 18 years of age.

#### *Adult entrants*

Adults, over 18 years of age, who enter the industry in considerable numbers are also required by regulations to undergo preliminary training. The training period is of shorter duration than for boys and extends over not less than three weeks, during which 112 hours' instruction must be given including 76 hours' practical training and thirty hours' oral instruction. Training is given at the same non-residential training centres that train boys, except in one case in Scotland where adults attend a centre and reside in a nearby miners' hostel. The number of adult entrants varies from year to year. In 1948 it was 34,000, and in 1954 and 1955 it was 12,500 and 13,200 respectively.

#### *Coal-face training*

In addition to the preliminary training which must be taken by all entrants to the industry, all who are to work at the coal face must undergo further training instruction. This extends over a minimum period of sixty days to qualify for employment in any one of five specified occupations, with an additional twenty days for each of the other four occupations, making a total of 140 days in all for the fully qualified face worker. The regulations specify the type of supervision which must be given and distinguish between training given on special training faces and normal production faces.

### EDUCATION AND TRAINING OF JUVENILE ENTRANTS FOR PROMOTION

#### *The Ladder Plan*

Each year the industry needs large numbers of men to qualify for promotion to various junior official posts for which technical knowledge, skill and experience, coupled with statutory qualifications, are required. It is obvious that these must come largely from the juvenile entrants to the industry. To cater for the education and training of these men, and to improve the general standard of technical knowledge and skill in the industry, the National Coal Board formulated

imposed by Regulations under the Mines and Quarries Act, 1954, the National Coal Board has, under the Coal Industry Nationalisation Act, 1946 (Section 1 (2) (f)) a statutory duty to advance the skill of persons employed or about to be employed in the industry and to provide themselves and to assist others in the provision of, facilities for training, education and research. In these matters the National Coal Board must work on lines approved by the Minister of Power, both of whom are assisted by advice from various interested bodies including the Institution of Mining Engineers, the National Association of Colliery Managers, the National Union of Mine Workers, and like bodies.

It ought, however, to be mentioned that much of the present structure for education and training has been built on foundations laid or planned by the earlier mine owners, acting on advice and recommendations from the various professional institutions associated with the industry. A number of the more enlightened coal owners introduced education and training schemes long before they became compulsory, as well as awarding university scholarships to deserving youths. I pass now to consider the requirements of the various classes of workers and officials, beginning with the rank and file.

#### PRELIMINARY TRAINING OF NEW ENTRANTS

##### *Juvenile entrants*

During the five years 1951 to 1955 inclusive, an average of about 21,300 juveniles under 18 years of age entered the service of the National Coal Board each year. It is anticipated that in the foreseeable future the Board will be able to absorb a larger number, estimated at 25,000 to 30,000 per annum. All such entrants are required by regulations to undergo a course of preliminary training, in accordance with a scheme approved by the Ministry of Fuel and Power, (now the Ministry of Power) occupying at least 264 hours, of which not less than 132 hours must be devoted to practical instruction and demonstration of mining operations, and not less than 132 hours to attending classes relating to mining operations and other subjects of educational value, and in physical training. At least half the practical training and demonstration, that is, 66 hours, must be spent in instruction and demonstration underground in a suitable part of a mine.

In practice the preliminary training course is longer than this minimum duration and covers 16 weeks, during which time the boys are attached to a training centre. Training is carried out jointly with the Local Education Authority and the boys attend about half time at the local Technical College where they are taught English, Current Topics, Mathematics, Drawing, Mining science and operations and Physical training. They spend the rest of their time on practical mining instruction, mostly in underground galleries set aside for the purpose. They also pay visits to other mines to see various mining operations in progress. There are at present sixty non-residential group training centres for boys who reside at home or in lodgings and, in certain coalfields (Durham and Scotland), there are three residential training centres.

Boys for employment on the surface are given at least five days' training,

after which they work under strict supervision for at least twenty days or until qualified for the work upon which they are to engage.

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its Ladder Plan. This excellent and comprehensive plan follows lines originally conceived by the Mining Association of Great Britain and was evolved in consultation with the various professional and other interested associations. It is illustrated in the accompanying diagram and may be outlined briefly as follows:

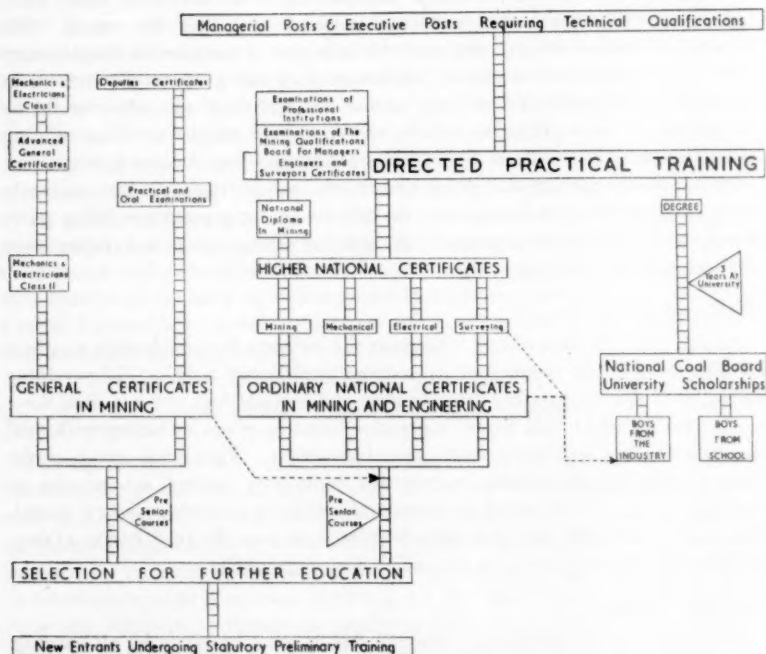


Diagram illustrating the Ladder Plan of the National Coal Board

All new entrants are given preliminary training in compliance with the training regulations, and from these are selected boys considered suitable for further education and training. These fall into two main streams, the one comprising those who possess the qualities necessary to become tradesmen, deputies or overmen, and the other, those who exhibit the qualities which fit them for promotion to posts as managers, undermanagers, surveyors and colliery technicians (mechanical or electrical), and who take a wider and more exacting course of education and training.

The future tradesmen, deputies and overmen, on the completion of the appropriate course, at about 19 years of age, take the examination for the general certificate for tradesmen or for mining as the case may be. The tradesmen thereafter proceed to an advanced course of two years' duration, after which they should be ready to obtain the appropriate statutory certificate as mechanic or electrician granted by the Mining Qualifications Board, subject to passing an

examination in Mining Law, conducted by the M.Q.B., and having had experience in accordance with rules laid down by the M.Q.B. The prospective deputy/overman, after obtaining the general certificate (mining), proceeds with further practical experience covering a period of three years, after which he takes a practical and oral test to obtain his statutory certificate.

Trainees for posts as managers, undermanagers, technicians and surveyors rise by a different ladder. For the first three years they study for the appropriate Ordinary National Certificate, which they take at the age of about 19. Subsequent to this, they take a further course of study for about two years leading to the Higher National Certificate which, together with specified periods of approved practical experience, qualifies them to proceed to their respective statutory certificates and for appointment to responsible positions.

During training all trainees are granted day release with pay. In 1955 some 16,000 were so released and 12,750 took Ladder Plan Courses. National Coal Board university scholars from within the industry or direct from school rise by still another ladder as shown to the right of the Diagram.

From this brief outline of the Ladder Plan many details have, of necessity, been omitted. In particular it should be noted that the plan is flexible to allow of transfer in accordance with ability and progress or of discontinuance without waste of time. It offers opportunity for promotion to all entrants to mining and aims to educate and train mine-workers to new standards and to improve their status.

#### *Apprenticeship schemes*

The Board also runs special apprenticeship schemes for craftsmen and for mining surveyors. The main craft apprenticeship scheme is for colliery engineering craftsmen but there is also a scheme for other engineering craftsmen. Entrants are normally under 17 years of age and are allowed part-time release to attend a technical college to obtain the Ordinary National Certificate under the Ladder Plan.

The apprenticeship scheme for surveyors, open to suitable boys under 18 years of age, provides a co-ordinated course of technical education and progressive practical training, with the Higher National Certificate or the Intermediate Examination of the Royal Institution of Chartered Surveyors as their objective, to enable apprentices to obtain the Statutory Mine Surveyors' Certificate under the Mines and Quarries Act, 1954.

Apprenticeship for coal-face workers was recommended by a departmental committee appointed in 1946 and the introduction of a scheme open to all mining boys, leading to qualification as skilled miners, as is the practice in certain other countries, is under consideration.

#### EDUCATION AND TRAINING FOR MANAGEMENT

Much attention has been devoted to the contentious problem of the training or making of managers. It has often been said that 'managers are born, not made', and many have held that the art of management cannot be taught. It is true

that success in management calls for certain personal qualities, tact, judgment, self reliance and capacity for leadership, and that all men are not endowed by nature with these qualities. Experience shows, however, that there are many aspects of pure management, apart from the technical side, which can with advantage be taught. Until comparatively recently the majority of mine managers were recruited from amongst the mine workers who obtained their technical education largely through evening or part-time day courses while employed in the industry, many of whom, through innate ability, hard work and indomitable courage, rose to high positions. Many of the colliery managers of the future will, as in the past, be men who have worked their way up in the industry but they will not be enough.

The change in the character of the industry following its integration and its increasing complexity, calling for high technical, administrative and organizational ability have made it obvious that we must in the future look for the majority of the higher officials from amongst the ranks of university graduates and men with high professional qualifications normally obtained after years of full-time study, a conclusion long since reached in other coal-producing countries. It is also desirable that the prospective manager or higher official should be specially trained from the outset of his career.

As already mentioned, courses in mining have been offered by the universities for over half a century and the facilities thus offered have, during recent years, been made more readily available. But the output of mining graduates from our nine university mining departments still falls short of the requirements of the industry. Thus in 1936 the number of graduates was only 33, of whom 22 graduated in Coal Mining and 11 in Metalliferous Mining. Since the war there has been a welcome increase, largely due to the far-sighted policy of the National Coal Board, but the output is still inadequate, averaging over the last five years only 107; 83 in coal mining and 24 in metal mining. In the current session 1956-57, there are 445 mining undergraduates in Great Britain, of whom 372 are coal miners; about half of these hold National Coal Board scholarships. In passing it is of interest to note that in the Ruhr coalfield of Germany there are about 800 mining undergraduates in the three mining universities (Aachen, Charlottenburg and Clausthal). The output of graduates is about 250 per annum, of which about half enter the hard-coal industry which has an output of only about sixty per cent of that of Great Britain.

In consequence of the small number of mining graduates in the past the mining industry of this country suffers from a shortage of highly trained staff. In the Annual Report of the National Coal Board for 1950 it is pointed out that there is no other engineering industry in the country in which the number of university graduates is so small in relation to its scale of operations and that 'the industry's resources of men with high technical qualifications are stretched to the limit'. This point is also emphasized in the 'Fleck' report on the organization of the N.C.B. issued in February, 1955.

The position in the coal mining industry in this respect as compared with other industries is strikingly exemplified by the percentage of employees with

higher education and training in various industries, which according to the population census of 1954 were then as follows:

Aircraft production	...	...	...	...	16%
Chemicals	...	...	...	...	13%
Electrical engineering	...	...	...	...	12%
General engineering	...	...	...	...	10%
Quarrying and other mining	...	...	...	...	8%
Textiles...	...	...	...	...	5%
Coal mining	...	...	...	...	2%

Compared with other European coal-producing countries the number of graduates is small. Thus on the basis of graduates per 1,000 tons of output per day, the numbers of graduates is estimated to be as follows: the Ruhr, 1.8; France, 3.0; Holland, 4.0; Russia, 8.0; Great Britain, 0.5.

It is obvious that drastic measures are called for to attract more and more highly trained men into coal mining. The number of mining students in our universities and colleges needs to be increased considerably. So acute is the problem that the National Coal Board has in hand a project for importing foreign graduates to make up the shortage.

#### *Statutory qualifications for mine management*

Managerial and certain engineering posts at a colliery can only be held by men in possession of Certificates of Competency issued by the Ministry of Fuel and Power (now Ministry of Power) on the recommendation of the M.Q.B. The M.Q.B. acting in accordance with statutory rules set the standard of qualifications for these posts and ensure that applicants are up to the standard before certificates are issued. An undermanager must hold at least a Second Class Certificate of Competency and a manager a First Class Certificate of Competency.

Certificates of Competency may be obtained (provided the requirement of practical experience has been satisfied) either (a) wholly by examinations set and marked by the M.Q.B., or (b) partly by such examinations and partly by examinations recognized for exemption. In either case, candidates must be at least 21 years of age and have had, if they hold a recognized degree or diploma in mining, at least three years' practical experience underground, including 18 months at the coal face or, in other cases, five years such experience, including two years at the coal face. Statutory certificates are not issued until a candidate has attained the age of 23 years, even though the examination may be taken earlier and the minimum age for appointment as a manager is 26 years. Exemption from parts of the examination held by the M.Q.B. may be granted to candidates holding approved degrees or diplomas to Associate Members (by examination) of the Institution of Mining Engineers, to holders of approved National Diplomas in Mining and for Second Class Certificate holders of the Higher National Certificate in Mining.

Until the early years of this century the recognized method of training for

the mining engineering student was by indentured apprenticeship to a practising mining engineer either with or (mostly) without university education, but for various reasons the system of apprenticeship lapsed some 25 years ago. It will be convenient to consider separately how the requirements regarding technical education and practical training are met.

### *Technical education*

The technical knowledge necessary for mine management may be obtained either by taking an approved full-time mining degree course at a university or by approved part-time study at a technical or mining college. In either case, however, the Statutory Certificate of Competency must be obtained. The examinations for this certificate can only be taken by candidates furnishing evidence of a satisfactory general education, followed by approved technical education and practical training. The full ('old style') examination set and marked by the M.Q.B. is an exacting test and covers an immense field in six papers taken during three successive days. Recently, however, a three-stage Examination combined with organized courses of instruction covering four years for 2nd Class Certificates and a further two years for 1st Class Certificates has been introduced. It is the intention of the M.Q.B. to discontinue the 'old style' examination after 1959.

There is no doubt that the best preparation for management is by a full-time residential course at a university, on account of the wider field covered by the curriculum and, equally important, the students' participation in the corporate life of the university. As might be expected, the contents of the Mining Degree courses offered at the nine British universities vary in detail. In all cases entrants must have attained a satisfactory standard of general education, usually including Mathematics and Physics at Advanced G.C.E. level and Chemistry at ordinary level. If the standards in these subjects are sufficiently high, students may proceed to an Honours Degree in three years. With entrance at a lower standard three years are required for the Ordinary Degree and four years for the Honours Degree. In my opinion the Honours Degree should be taken wherever possible, although there exists ample scope in the industry for the services of the Ordinary Degree man.

The curricula cover Pure Science, which serves as a foundation for the study of Geology, Surveying, General Engineering and Mining Technology, together with supplementary courses in allied subjects such as Metallurgy, Economics and Human Relations. Students are also required to have had a limited amount of practical mining experience before graduation and in this connection I consider it is an advantage for students to have spent some time, not more than a year, in the mines before entering the university to enable them to appreciate more fully the significance and value of the various courses of study.

After graduation the student proceeds to further practical training in preparation for his statutory certificate, preferably employing the Associate Membership examination of the Institution of Mining Engineers for the purpose of gaining the maximum exemption from the statutory examination.

THE NATIONAL COAL BOARD SCHEME FOR  
EDUCATION AND TRAINING FOR MANAGEMENT

From the acute shortage of qualified men confronting the National Coal Board on its appointment, it was obvious that immediate and drastic steps were necessary to encourage suitable young men already within the industry to qualify for managerial and administrative posts and to attract new blood into it. The Board realized that this could only be accomplished by making mining more attractive and by offering inducements and facilities for suitable youths, both from within the industry and from outside, to take advantage of university education and subsequent training for management. With this end in view, therefore, the Board introduced in 1948 its excellent education and training scheme. This may be conveniently considered under two headings, namely: The Scholarship Scheme and the Scheme for Directed Practical Training.

*The N.C.B. Scholarship Scheme*

Since 1948 the National Coal Board has offered 100 scholarships per annum to promising young men already in the industry and to suitable advanced-level school leavers. Most of these scholarships are in Mining Engineering, but some are awarded for Mechanical or Electrical Engineering, Fuel Technology and Chemical Engineering. In no year, however, has the full number of scholarships offered been awarded, owing to lack of suitably qualified applicants. Over the nine years, 669 scholarships have been awarded of which 379 (57 per cent) were to workers within the industry and of the total awards 587 (88 per cent) were for Mining Engineering. By the end of the 1955-56 session, 313 N.C.B. scholars had graduated, more than half with honours, and entered the industry. The scholarships are tenable at any university selected by the applicant and approved by the Board, and are of such value as to render the holder entirely independent of financial assistance from other sources.

A limited number of scholarships are awarded to candidates of exceptional ability and promise to enable them to take an Engineering Degree at Oxford or Cambridge Universities, followed by a shortened Mining Degree course at certain other universities. In such cases the full university course extends over five years (three years at Oxford or Cambridge, plus two years at an approved Provincial university). In addition, 'conversion scholarships' may be awarded to graduates in Science or Engineering to enable them to take a further university course in order to add a Degree in mining to their existing qualification.

All tuition, examination and other obligatory expenses are paid by the Board direct to the university and liberal maintenance allowances are paid similar to those paid to State scholarship holders, but there is no parental 'means tests'. The maintenance allowances vary with the age of the scholar, the university chosen, and whether the scholar resides in hostel, in lodgings, or at home. The present allowances range from £176 per annum for a scholar under 21 years of age, living at home and attending a full-time course at a provincial university (£245 per annum if resident in hostel), to £348 per annum for scholars over

21 years of age and attending Oxford or Cambridge. Scholars who are married at the date of notification of the award receive an additional £145 per annum for the wife, plus £50 per annum for the first child and £30 per annum for each additional child. In special cases allowances are paid for dependent relatives whom the scholars have to support.

All candidates must furnish evidence of eligibility to embark upon the particular university course selected. In the case of internal candidates considerable weight is placed upon the records of practical experience and education, whilst external candidates, in addition to offering a good school record, must be suited by temperament, physique and inclination for work in the mining industry and in due course to occupy positions of responsibility therein. All candidates must also intend to make their careers in the coal-mining industry of Great Britain and are expected to stay in the industry for at least three years after graduation.

#### *Other scholarships*

In addition to the scholarships offered by the National Coal Board, many other university scholarships tenable in mining are offered by local education authorities and other bodies.

#### *Practical training: The National Coal Board Scheme for Directed Practical Training*

All National Coal Board mining and engineering scholars, on graduation, enter the Board's scheme for Directed Practical Training, which combines practical experience with training in administration and in the fundamentals of good management. This scheme is open to men holding approved Degrees, Diplomas or comparable qualifications in Mining, Mechanical, Electrical, Chemical and Civil Engineering, who wish to enter the industry and to men already in the industry who have reached Higher National Certificate standard and who show promise of becoming qualified and competent engineers. The complete scheme embodies separate syllabuses, of up to three years duration, for various classes of trainees, that is, Mining Engineers, Mechanical Engineers, Electrical Engineers, Combustion Engineers, Coal Preparation Engineers, Civil Engineers and Workshop Managers.

The training is in all cases essentially practical in character and covers experience in all departments. That for the mining engineer is shown in the Appendix. It follows closely lines laid down by the Institution of Mining Engineers for the training of prospective members of that body and is accepted by the M.Q.B. for the purposes of the colliery managers' certificate. The training is carefully supervised throughout by supervising officers chosen from amongst senior officials of the Board's staff, to whom the trainee is required to furnish periodic reports. Careful records are kept of the trainee's work and progress, and these assist the supervising officer in planning the trainee's future programme.

During his Directed Practical Training each trainee attends two residential courses each of two weeks duration. Normally a junior course, held in one of the

University Mining Departments, is attended during the first year and a senior course at Cambridge in the last year of training. The junior courses are arranged by the Professors of Mining in conjunction with the Board but the senior courses are run entirely by the Board. At both courses trainees from different Divisions meet together for lectures by experts on the organization of the Board, on problems of management and more advanced management techniques. These subjects are discussed by the trainees in syndicates and in informal groups under the guidance of practising managers and other senior members of the Board's staff who act as tutors. Trainees may also attend special courses at the Board's Mines Mechanization Centre at Sheffield.

Provision is made for trainees to gain experience in British coalfields other than the one to which they are attached and, in some cases, for visits to foreign coalfields with a view to broadening their outlook and stimulating their interest. They are paid starting salaries in accordance with a scale which ranges from a minimum of £500 per annum at 21 years of age or under, to a maximum of £740 per annum for men with a higher degree and 28 years or over in age with increments of £30 per annum. There are at present some 760 Directed Practical Trainees of different categories in the scheme.

Promotion after completion of Directed Practical Training naturally depends upon personal qualities, efficiency, keenness, proved ability and adaptability. It is customary, and desirable, for the ex-trainee to gain experience first in some junior post. In the case of the mining engineer, he normally proceeds to a junior post in the direct line of management such as deputy and overman. After proof of his ability, he usually gains promotion to the still junior rank of assistant manager or undermanager, experience in which forms a valuable part of training for higher management. With increased experience and ability he may look forward to appointment as a colliery manager and to further promotion to important senior posts at area, divisional or national level with commensurate remuneration. Men with special aptitudes or qualifications may be selected for specialist posts and trained accordingly.

#### TRAINING OF NON-TECHNICAL STAFF

##### *The Administrative Assistant Scheme*

Numerous posts exist in the mining industry for which no technical qualifications are required but which call for special ability and training in administration. Provision for such training is afforded by the National Coal Board's Administrative Assistant Scheme. Entrants to this scheme are chosen from graduates with good honours degrees and from men already within the industry of similar calibre and promise. They are then given two to three years' special training with planned and supervised experience in various departments at all levels of the Board's organization, that is, colliery, area, divisional and national levels.

#### FURTHER TRAINING FOR SENIOR STAFF, THE STAFF COLLEGE

What has been said so far refers to personnel up to and including the post of colliery manager and equivalent rank. Experience shows, however, that skill

in management and administration can be augmented by further training after a certain amount of experience in posts of responsibility. The value of such further training has been demonstrated by the Administrative Staff College at Henley, where senior executives from different industries study together management problems and techniques under the guidance of men with exceptional knowledge and experience of the same.

Much has been done in recent years in this direction by special advanced courses and conferences arranged by the National Coal Board for officials already in senior posts and those who will fill such posts in the future. In 1954 the Board decided to set up its own Staff College for further advanced training, which was opened in September, 1956.

The main purposes of the College are to assist in the training of those members of the Board's staff who are considered capable of rising to posts of the highest responsibility; to afford opportunities for men who are already in fairly senior positions to reflect upon their own problems, and to permit such men while relieved of their day-to-day responsibilities to study and discuss with their contemporaries and with more senior officials, Board members and others eminent in various industries, recent developments in management methods and techniques. The setting up of the Staff College marks an important step in the programme of education and training which should prove of inestimable value in raising the efficiency of management and in attracting men of the highest calibre and ability into the industry.

In this general survey of the problems under consideration many important details have been omitted, but I think sufficient has been said to show that great strides have been made in recent years and that strenuous efforts are being made to remedy the shortcomings of the past and to meet the needs of the future. With regard to the future, the complete scheme of mining education and training must, using the military analogy, ensure an adequate supply of (1) rank and file or general workers, (2) non-commissioned and warrant officers or under officials and technicians to supervise the working of the mines, and (3) commissioned and staff officers comprising the managers and high rank officials to plan and control operations in the industry together with the non-technical administrative officers.

As to the rank and file, in the earlier days brawn rather than brain was considered the essential, but happily it has become recognized that intelligence, supplemented by suitable education and training, are necessary for all mine workers. Some have criticized the inclusion of English and elementary science in the syllabuses for the ordinary mine worker. It is, however, apparent that the better a man's command of his native tongue the better is he able to understand and interpret verbal or written instructions and to express himself intelligently, for instance when reporting directly, or by telephone or in writing, a breakdown or other occurrence. Similarly a knowledge of elementary physics and applied mechanics is calculated to make a man a better machine operator, of which the industry will require increasing numbers in the future. Such knowledge adds interest to his work, especially in the highly mechanized mine

of to-day. It lifts it from the drudgery so long attributed to mining, and a system of apprenticeship for all workers will certainly attract a better class of recruit. Similarly with the equivalent of the N.C.O. and warrant officer class in the mines, it is no longer possible to acquire the requisite knowledge and skill solely by experience.

Although mining is an ancient industry, it works in a modern world and its standard must be adjusted accordingly and the schemes of education and training now in operation are designed to make that adjustment. The most important aspect of the problem is probably the outstanding need for the further training of higher officials and executives, and it is imperative that we should in the future attract into the industry a larger number of first-class graduates to fill these posts. It is suggested that much more may be accomplished in this connection by a closer liaison between the National Coal Board and the universities and other teaching institutions both for education and research. Thus arrangements for interchange of staff by seconding senior and experienced members of the Board's staff to serve in the universities and for members of university staffs to obtain wider experience at the mines would, I believe prove mutually advantageous. I found that invaluable service was rendered by members of the Safety in Mines Research Establishment staff as honorary lecturers in the University Post-Graduate School of Mining. With an extension of such cooperation, which is practised in certain countries, the contribution of the universities could be considerably enhanced.

On the question of university education in mining, I feel that the standard of entrance to the Mining Degree courses should be reviewed, and should be that of the Intermediate Examination in pure science subjects. This should be followed by a minimum of three years' full-time study for the Ordinary Degree and four years for the Honours Degree which is in operation by at least one university.

The excellent work done in the post-graduate courses for specialists, offered by certain universities, might also be extended with advantage, especially by the attachment of qualified members of the Board's staff to the universities for this purpose. It is also hoped that close liaison will be maintained between the new Staff College and the universities by arranging for interchange of staff and for members of the staff of the latter to attend the Staff College.

Close relation between the College and the professional institutions, which have done so much in the past and must play a large part in the future, should also be fostered.

In a brochure entitled *British Coal: The Rebirth of an Industry*, issued to mark the first ten years of nationalization, Mr. James Bowman, the Chairman of the National Coal Board, states 'In ten years the coal industry has been reborn'. I have no hesitation in saying that the importance attached by the Board to problems of education and training has played a major part in that rebirth as well as to the 'Renaissance of Management' discussed in a recent article by Sir Andrew Bryan—a member of the Board.

Not least amongst the legacies of the first ten years of nationalization is the

new spirit and the better understanding which now pervades the industry. In addition, our mines are safer, healthier and more productive. The reduction in accidents which has been a gratifying feature of the last forty years or so has been continued so that the death rate over the last ten years is some forty per cent less than in the preceding ten years, while output of coal has risen by some 16 per cent and output per man shift by some ten per cent. So many factors are involved that it is not possible to estimate how far these improvements are due to better education and training, but I make bold to assert that in my opinion they have made an important contribution and will continue to do so increasingly as their effects become operative in the future.

It may be remarked that the National Coal Board looms largely in the foregoing; this is because of the responsibility of that body and the outstanding part it plays in all matters of mining education and training in these days. I would like to acknowledge assistance received from members of the staff and from publications issued by the Board.

Outside the National Coal Board, however, there are a large number of persons employed in the metalliferous mining industry and in the Mines Inspectorate, as well as in the various teaching and research institutions, all of whom require education and training along similar lines with specialization according to the particular posts they fill.

In conclusion, I would emphasize that the mining industry needs talent and at the same time it offers unparalleled prospects and opportunities to the right type of men and boys. For various reasons in the past it has failed to attract its proper share of the brains of the country which have been largely creamed-off by other industries. The National Coal Board is, however, obviously determined to remedy this state of affairs and to ensure to all entrants first-class prospects for the future.

It has been suggested by some that the dawn of the atomic era means that the coal age is rapidly drawing to its close, but such a conception is at variance with well recognized facts. In the foreseeable future, or at all events for several generations ahead, we shall need more and more coal as a source of our growing power and other requirements. To meet this need the coal industry is being reconstructed. New pits are being sunk, old pits are being remodelled, mechanization is growing apace and up-to-date management techniques are being rapidly introduced.

To carry out this work, which is vital to our national economy and well-being, we need the best brains. The National Coal Board is investing enormous sums of money and, as will be evident from the foregoing, is spending much on education and training, representing an investment in men, which will yield handsome dividends.

#### APPENDIX

##### NATIONAL COAL BOARD MANAGEMENT TRAINING SCHEME

###### *Syllabus of training for mining engineers*

1. Haulage and transport including pit-bottom arrangements main and secondary haulage. 1 month

2. Coal face statutory training in coal getting, packing and withdrawal of supports, ripping, conveyor shifting and coal cutting.	6 months	
3. Assistant to shotfirer at coal face and rippings	1 month	
4. Stonework—driving of drifts. including high-speed drifting.	2 months	
5. Repairing roads construction of underground motor-houses etc.	1 month	
6. Ventilation and safety at the coal face, including dust suppression.	1 month	
7. Coal-face mechanization, including work study. Strata control.	3 months	
8. Assistant to deputy and to district and specialist overmen.	2 months	
9. Daily underground inspections with undermanager	1 month	18 months.
<i>Plant maintenance and engineer's department</i>		
10. Organization and practice of planned maintenance, electrical and mechanical at collieries and at Area workshops.	4 months	22 months.
<i>Surveying, planning and safety</i>		
11. Surveying underground, including 'lining' and quarterly surveys.	1 month	
12. Planning department, including both long and short-term planning. Progressing.	2 months	
13. Safety department. Ventilation and dust problems, including laboratory work.	1 month	
14. Assisting method-study engineer	1 month	27 months.
<i>Finance, purchasing and stores</i>		
15. Assisting in work of time office and wages office. Costs and statistics, including standard costs. Internal audit. Capital schemes etc.	2½ months	
16. Assisting in work of purchasing and stores department, colliery and Area. Storekeeping and stock control: issue and distribution. Purchasing and plant inventory.	1½ months	31 months.
<i>Coal</i>		
17. Preparation of coal for market	1 month	32 months.
<i>Administration</i>		
18. Assistant to undermanager, including study of labour deployment.	1 month	
19. Assistant to manager: experience of office administration: attendance at deputations and Colliery Consultative Committee. Preparation of reports on underground investigations and incidents. Study of wages agreements and machinery for settling disputes (in collaboration with Industrial Relations Department). Application of Standard Costs at Colliery.	3 months	36 months.

Candidates who do not hold an approved degree or diploma will be required to have completed, in addition to the above, a further 24 months of work underground, including at least six months more work at the coal face.

*List of special operations of which candidates should have some knowledge:*

- (1) Erection of new plant. (2) Shaft sinking and boring. (3) Shaft repair work. (4) Changing winding ropes and guides. Recapping. (5) New and special methods of working. (6) Training in rescue and recovery work. (7) Spontaneous combustion. (8) Approaching disused workings containing water or gas. (9) Surface and underground fire fighting and recovery work. (10) Making-up of wages and measuring of work. (11) Agreements with workmen's representatives relating to wages and conditions of work. (January, 1957)

## DISCUSSION

THE CHAIRMAN: Thank you Professor Statham for a very interesting and encouraging address. I think it would be fair to sum it up by saying that there are now abundant facilities for training and education of all necessary kinds for the mines, but that some of those facilities are not being used as fully as we would wish. I am very glad that you stressed the point that there is a great future in the mining industry. Perhaps if that were more widely understood by the young people of to-day, instead of their being misled into thinking that atomic energy might replace coal, instead of merely supplementing it, then those facilities would be better used, especially at the universities.

Professor Statham, you did mention that the output of mining graduates at our universities where they can be trained is inadequate. You mentioned that in the last five years there were 83 men per year coming forward for coal mining, and this represented only two per cent of the graduates from universities trained in technical subjects. I hope I have got the figures right?

THE LECTURER: Actually what I said was that according to the population census of 1954 there were only two per cent of highly-trained persons in the mining industry. Not all of these, however, are graduates, in fact only a small proportion of them are university-trained men. The two per cent was quoted in comparison with other industries to show how, if one might use the term, impoverished the coal-mining industry is of men with 'higher qualifications'.

THE CHAIRMAN: So it is not the output from the universities which is two per cent of the total, but the number of people qualified in the industry. Naturally from that the question springs to mind, what can be done to encourage more potential mining graduates to undertake the training which is offered for coal mining?

THE LECTURER: This is a very difficult question to answer in view of what is being done already. The only thing I can see is more propaganda amongst the schools and universities, so that they may know more of the excellent prospects and opportunities that exist in the industry. In the past the mining industry has been under a cloud and, as I mentioned, the brighter boys, on leaving school, have been 'creamed off' by what were more attractive industries. They were undoubtedly more attractive in the past, but in recent years mining has been revolutionized and to-day offers exceptional opportunities. When I go down the modern mine and see what is being done, in comparison with what was done when I first entered the industry some fifty years ago, I say to myself 'the day of miracles is not past'. Many people, I hate to say, partly on account of bad press reports and other unfavourable propaganda, still have the idea that mining is an awful industry, with nothing but hard work and dirt, and almost akin to slavery. To-day, this is not so, and what we must do to get more suitable entrants into the industry is to let these people know what has happened, and what is happening in our mines. This means more propaganda on the part of the National Coal Board and the Government, to let the public know the conditions and prospects which are at least as good as I should say better than, in other industries.

MR. C. D. GRAHAM: Professor Statham quotes two per cent of the people in the industry as being graduates. . . .

THE LECTURER: May I interrupt to point out again that the two per cent given in the comparative table was the figure given in the population census for persons possessing 'higher qualifications'. What the term includes I am uncertain, but although it is useful for comparison it certainly includes a large majority who are not graduates.

Later I quoted comparative figures for other countries and pointed out that the number of graduates in the coal-mining industry of Great Britain was very small.

MR. C. D. GRAHAM: What figure does Professor Statham feel would be a satisfactory one? What is the aim, what figure are we aiming at in our education?

THE LECTURER: The fallacy of the two per cent being graduates is readily seen when it is realized that there are 700,000 persons employed in the industry. Two per cent would be about 14,000 and there is not anything like that number of graduates in the industry.

With regard to a satisfactory figure, it is difficult to be precise but I consider we should aim at something of the order of four or five times the present number at least.

MR. E. H. BROWNE, C.B.E. (President, Institution of Mining Engineers): Accepting in full Professor Statham's view that there should be a very large increase in the number of graduates in coal mining, I should like to ask him whether nine Mining Departments are too many; or whether higher standards of mining education might be provided at fewer centres?

THE LECTURER: I have already said that I think we could do with an increase of four times the number of graduates. We appear to have only about 400 at the present time so that we need, in my opinion, at least 1,600 to 2,000 graduates. We have nine universities with Mining Departments, and we have 372 coal mining undergraduates at the present time, so we have an average of less than fifty in each school. The number of undergraduates needs to be increased to meet our requirements and I should prefer to see this done by increasing the number in each school rather than by reducing the number of schools and having larger units.

If you are in charge of a department in which there are a large number of students, you lose the personal touch. If the numbers are reasonable, you know each man and can keep in touch with him during his course and afterwards to the advantage of the department. I certainly think that there is room at present for all the nine university mining departments and that the number of undergraduates and post-graduate students should be increased, but without making the departments unduly large.

MR. I. A. FERGUSON: May I ask Professor Statham if the Royal School of Mines in Cornwall plays any important part in training for the coal industry of this country?

THE LECTURER: I should say that few of the students from the Cornish School of Mines enter the coal-mining industry. It is a metalliferous mining school, and so far as I know the majority of the students go into metalliferous mining abroad.

THE CHAIRMAN: I wonder if I may dare at this late stage raise a new and rather big point, and that is training in the prevention of pneumoconiosis, another thing for which, departmentally, I have to bear some responsibility as *ex-officio* Chairman of the National Joint Committee on pneumoconiosis. Though accidents in the mines are on the decrease and that has been a trend in recent years, there is some evidence that pneumoconiosis is on the increase, and that may well be due to an increase in mechanized mining. Therefore I am wondering whether, at the highest level of training in the university mining schools, this question of prevention of pneumoconiosis enters into the curriculum to any great extent?

THE LECTURER: You say, Sir, that mechanization may well be responsible for the increase of pneumoconiosis in recent years. It may play a part, but I think there is another factor which is sometimes lost sight of, and that is the greater skill of the diagnostician in recognizing the early symptoms of the disease to-day. Cases are detected and reported at a much earlier stage than previously, and for this reason it appears that the disease is on the increase when there is, in fact, no real increase. A similar thing applies to minor accidents. The greater care taken in the treatment

of minor injuries, and the shorter duration of disablement for which they have to be reported have, with other reasons, given rise to an apparent increase in the number of such accidents which does not exist.

I think the extreme, though necessary, care taken by the National Coal Board in examining for the disease, and the wider application of such examination, lead to the detection of cases which previously would have gone undetected. They were there, but were not diagnosed and reported as they are to-day.

Prevention measures against pneumoconiosis are studied and taught in the universities, especially in so far as an essential means of preventing it is to prevent the production and inhalation of the dust which causes it. Dust-prevention methods are given much attention, as are also methods of collecting samples of air-borne dust and their examination to ascertain whether they are likely to be injurious to health. At Sheffield University special courses of lectures by experts on various aspects of pneumoconiosis are arranged periodically in the post-graduate School of Mining, to ensure that students are kept in touch with the latest developments. The enormous strides made in dust prevention and suppression in mechanized mining will, I am confident, do much to reduce the incidence of pneumoconiosis and may well go far towards its eradication in the future.

THE CHAIRMAN: I was careful in choosing my words. I said there was 'some evidence'. I do not suggest that it is necessarily conclusive evidence.

*A vote of thanks to the Lecturer was carried with acclamation and, another having been accorded to the Chairman, the meeting then ended.*

## GENERAL NOTES

### EXHIBITIONS OF SCOTTISH ART

Two Scottish artists, associated with our Society, whose reputations were initially established north of the Border, are at present exhibiting their works—one in Edinburgh, the other in London. All that their art has in common is that scrupulous craftsmanship which is a prevailing characteristic of the Scottish school, various as its manifestations have been.

Of the two, Mr. C. d'O. Pilkington Jackson, A.R.S.A., F.R.B.S., is certainly the more widely known, as he is also the more experienced artist, with many notable sculptures to his credit. His latest statuette of the Bruce, Robert I, before Bannockburn, is a splendidly assured and monumental work which it would be interesting to see carried out on a commanding scale, and sited appropriately on that field which the great warrior surveyed at daybreak on 24th June, 1314. Under the auspices of the National Trust for Scotland, the original plaster model (which stands something under three feet high, corresponding in every particular with the finished work in cast aluminium) is being exhibited, to advantage, in Doig, Wilson and Wheatley's Gallery in George Street, Edinburgh.

The accurate detail of the armour and horse's trappings in no way interferes with the noble breadth and sweep of the design. It may be judged, indeed, the most completely satisfying of Mr. Pilkington Jackson's equestrian pieces, and it seems odd that this commission should have come, not from Scotland, where his work is much respected, but from a distinguished patron in Calgary, Alberta.

Our other artist, Mr. Gordon Gunn, studied at the School of Art in Glasgow, where he is familiar to-day for his architectural and painting pursuits. His exhibition of water-colours of desolate, rocky inlets in the Scottish and Cornish coasts introduces us, at Walker's Galleries, in Bond Street, to an artist whose conventional methods might seem at variance with his romantic, even visionary aspirations. Mr. Gunn's

washes of mottled colour are never less than adroitly handled, and he can compass with facility the effects of wet sand, the translucency of shallow water, or the strange structure of rocks as in his *Kynance Cove, Cornwall*.

But if such equipment may serve a topographical purpose, it is manifestly less suited to Mr. Gunn's cosmic visions, and his few essays in this kind might be thought mistaken. Science fiction, in fact, if it can be successfully exploited in art at all, demands that totally different mode of expression known as 'action' painting; and the American, Mr. Paul Jenkins, seems alone in creating an imaginary, inter-stellar universe with any kind of conviction in his fluid, seemingly spontaneous style. However, it would be a timid artist who did not sometimes overreach himself, and Mr. Gunn's only problem now (and it is a formidable and fundamental one) is evidently to devise adequate means to communicate his more ambitious flights of fancy.

NEVILLE WALLIS

#### ANTARCTIC SURVEY EXHIBITION

An exhibition illustrative of British exploring and scientific activity in the Antarctic is at present on view at the Imperial Institute, South Kensington, where it will remain until 2nd June. Although the exhibition deals mainly with the work of the Falkland Islands Dependencies Survey, one section is devoted to the Commonwealth Trans-Antarctic Expedition, while the contribution of the Commonwealth to the International Geophysical Year is generally illustrated.

The exhibition is open on weekdays from 10 a.m. to 4.30 p.m., on Saturdays from 10 a.m. to 5 p.m., and from 2.30 p.m. to 6 p.m. on Sundays. Admission is free.

#### TEXTILES AND WALLPAPERS EXHIBITION

An exhibition of textiles and wallpapers designed for specialist use—in hotels, schools and other public buildings—is at present on view at the Building Centre, Store Street, London, W.C.1, where it will remain until 26th April. This is a restaging of an exhibition held by the Cotton Board at their Colour Design and Style Centre in Manchester last December, and is the first such show to be brought to London.

The exhibition is open from 9.30 a.m. to 5 p.m. on weekdays and from 9.30 a.m. to 1 p.m. on Saturdays. Admission is free.

#### HISTORY OF SCIENCE COURSE

The University of Nottingham delegacy for extra mural studies announces a residential summer school on 'Science in the eighteenth century', to be held at Buxton from 10th to 24th August, 1957. The first week of the course will be devoted to a general survey of the progress of science and technology in the eighteenth century, the second being concerned with the contribution made by the Midlands. It is possible to enrol for either or both weeks of the course. Full particulars of the syllabus and fees, together with application forms, are obtainable from J. T. Rhodes, W.E.A. District Secretary, 14-22 Shakespeare Street, Nottingham. The closing date for applications is 3rd June.

#### TRANSPORT RESEARCH GRANT

Applications are invited by the London School of Economics for a Rees Jeffreys grant for at least one year's full-time research into the economics of transport. The Studentship is open to anyone who has been engaged in the administration of transport or in the production of transport equipment or facilities. The value of the Studentship will be £500, and it will be tenable for one year from 1st October, 1957. The closing date for applications is 1st September, 1957.

Full particulars and application forms are obtainable from the Registrar, the London School of Economics and Political Science, Houghton Street, London, W.C.2.

## OBITUARY

SIR THOMAS SOUTHORN

We record with regret the death, on 15th March, of Sir Thomas Southorn, at the age of 77.

Wilfrid Thomas Southorn, K.C.M.G., K.B.E., M.A., Hon.LL.D., was educated at Warwick School and Corpus Christi College, Oxford. He joined the Ceylon Civil Service in 1903, and became principal collector of customs and a member of the legislative and executive councils, after which, in 1926, he was transferred to Hong Kong and appointed colonial secretary. In 1936 he was appointed governor and commander-in-chief of the Gambia. His term of office was extended until 1942 and from then until 1946 he served as a Colonial Office liaison officer. He was created K.B.E. in 1933 and K.C.M.G. in 1938.

In 1943 he read a paper on 'The Gambia' to the Dominions and Colonies Section of the Society, and was elected a Fellow in 1946.

MR. C. K. OGDEN

We also record with regret the death in March of Mr. C. K. Ogden, the originator of Basic English.

C. K. Ogden, M.A., was born in 1889, and educated at Rossall School and at Magdalene College, Cambridge. He travelled widely studying methods of language teaching, but the greater part of his work was done at Cambridge. *The Meaning of Meaning*, a study of the psychological basis of linguistics which he wrote in collaboration with Professor I. A. Richards, appeared in 1923, and it was from certain considerations put forward in this book that Ogden's invention of Basic English was derived, the first book on which appeared in 1930. In 1939 the subject was propounded to the Royal Society of Arts by Professor Richards, in a paper on 'Basic English: Its Applications'.

With a vocabulary of only 850 words, Basic English was claimed to have many advantages over artificial languages, such as Esperanto, and from his Orthological Institute Ogden issued many works on and in Basic English. In spite of his devotion to this, his main work, he was a man of very wide interests, and among his publications were *The Meaning of Psychology*, and (in collaboration with Professor Richards) *The Foundation of Aesthetics*.

He was elected a Fellow of the Society in 1939.

MR. HAROLD SPEED

We also record with regret the death, on 25th March, of Mr. Harold Speed, at the age of 85.

Harold Speed, R.P., was born in London, and was educated privately. At the age of 17 he won a Gold Medal in the National Competitions, which took him to the National Art Training School, now the Royal College of Art, South Kensington, and a year later he entered the Royal Academy School. Perhaps best known for his presentation portraits, among them those of King Edward VII and King Albert of the Belgians, he also painted landscapes, *The Alcantara*, *Toledo*, *by Moonlight* having been purchased out of the Chantry Bequest Fund in 1905. He is represented in a number of municipal galleries, and the murals in the refreshment room at the Royal Academy are his work.

A member of both the Royal and National Societies of Portrait Painters, he was also a member of the Société Nationale des Beaux Arts, and he taught for some years at Goldsmiths' College. In 1916 he was elected Master of the Art Workers' Guild. Among his publications were *The Science and Practice of Drawing*, and *What is the Good of Art?*

He was elected a Fellow of this Society in 1950.

## NOTES ON BOOKS

BRITISH TABLE AND ORNAMENTAL GLASS. By L. M. Angus-Butterworth. Leonard Hill, 1956. 42s

While this book gives a comprehensive survey of the British table- and ornamental-glass industry from the times of Verzelini and Ravenscroft and of the Bristol glass-makers of the seventeenth century up to recent times, its true value lies in the way in which the later history has been dealt with. Many of the chapters are devoted to the background and long history of all the major glassworks still in existence and of the personalities involved; in this respect it is a living history which could only be compiled by one so closely connected to the industry as the author. In this way it is unique. It leaves the reader with the feeling that he knows the British glass industry intimately, which is not the case when the subject is dealt with, as is usual, in a more abstract form.

The title, however, would seem to imply that the book were devoted to present-day production in the British glass industry, while from the heading of the first chapter, 'Bristol Glass', the subject might appear to be the history of glassmaking in this country. Actually the book does not adequately fill either of these rôles. Certainly as a full history it falls far short, because of lack of detail as compared with previous publications devoted entirely to this subject. No mention is made, for instance, of the early Roman glass made in this country or of Anglo-Saxon glass, and there is little reference to thirteenth-century Chiddingfold, which was the chief centre of glassmaking in England for very many years.

There are over 200 good illustrations including Bristol, Nailsea and Irish glass and examples of the various types of blown, cut and pressed glassware made over the years in Stourbridge, Yorkshire, Lancashire, Newcastle and London. It is unfortunate, however, that the examples which have been chosen of modern productions do not really do justice to the industry.

In the reference section, the chapter 'Annals of Glass in Britain' contains a very useful and interesting chronological record of the chief events in the history of British glass, giving in brief terms the outstanding events from the thirteenth century. This section also contains a comprehensive glossary of terms used in the industry.

The book would have been quite complete with the history and the reference section. While the chapters devoted to detail regarding 'The Export Trade in Glass' and 'The Home Market for Glass' make interesting reading, in the chapters on 'The Shaping of Glass' and 'The Design of Glass', these subjects are dealt with too briefly really to warrant inclusion. To do justice to them would require volumes of their own.

The book is of great value to those closely connected with glass and of great interest to all who wish to learn more about this most beautiful and fascinating of man-made materials.

W. J. WILSON

DESIGNING A BOOK JACKET. By Peter Curl. Studio, 1956. 25s

This work, No. 65 in the Studio 'How To Do It' series, is primarily addressed to the art student who might be thinking of starting a free-lance career by way of book-jacket design. The illustrations consist of 148 reproductions of selected wrappers. The text is clearly written and takes the young designer through the various problems peculiar to book-jacket design, advises on the choice of equipment and finally on how to contact publishers.

The sales of a book will ultimately depend upon the interest of its contents and, although publishers are so 'sold' on the idea of the jacket's importance that they spend a proportionately large part of a book's total production costs on the embellishment of its cover, it is unlikely that a potential failure is ever turned into a winner merely by expensive jacket treatment. But in the market of gift books and novels of a type destined for the circulating library it is probable that an original and striking

treatment for the cover becomes of considerable sales importance, and it is for such books that the free-lance artist's skill is most likely to be called upon. Mr. Curl's interest and talent appears to be in the design of fiction wrappers; perhaps it is this which causes him rather to understate the purely typographical approach to book-jacket design and to omit the expected specimens of display typefaces especially suitable for use on wrappers.

The rewards for book-jacket designing are not great; 'most publishers pay from ten guineas', but the young designer must expect for a while to 'accept a guinea or so less'. This compares most unfavourably with the fees an advertising artist may expect to receive for similar effort.

A future edition could usefully include a chapter dealing with those aspects of colour theory that are particularly important in this branch of design; space could be found by dropping out the coarse-screen halftone reproductions of jackets which have been printed—with an almost complete loss of detail—on several of the text pages.

F. M. L. BARTHROP

## FROM THE JOURNAL OF 1857

VOLUME V. 10th April, 1857

### EXAMINATIONS

From a letter from the Secretary of the Society, Peter le Neve Foster, in reply to a communication on the subject of examinations.

One of the principal objects the Society of Arts had in view in establishing a general system of periodical examination for those who attend classes at Mechanics' Institutions, and for such of the middle classes as desire to avail themselves of the advantages they offer, was to secure, if possible, that a greater amount of attention should be given, as well by teachers as by pupils, to the common and indispensable elements of a sound education, however restricted in extent it might happen to be. Surely every lad on leaving school ought to be able to write a fair hand, to spell correctly, to revise simple mistakes in English composition, and to work easy sums in the common rules of arithmetic. That a great many youths at the present day are grossly deficient in these, the very first rudiments of education, they have the large and varied experience of the Civil Service Examiners to confirm their own observation. They do not believe that any proficiency, however great, in modern languages, could compensate a lad for his ignorance of these elementary principles, on which all sound education must be based.

### Some Activities of Other Societies and Organizations

#### MEETINGS

- TUES. 16 APR. Chemical Engineers, Institution of, (i) at The Engineers Club, Albert Square, Manchester. 5.30 p.m. Prof. E. S. Sellers: *Forty years on—if oil wells run dry.* (ii) at the Geological Society, Burlington House, W.1. 5.30 p.m. B. Edgington and D. A. Johnson: *The manufacture of cortisone.*  
Public Health Engineers, Institution of, at Caxton Hall, Westminster, S.W.1. 6.0 p.m. R. J. Orchard: *The effect of mining subsidence on public health engineering.*
- WED. 17 APR. Kinematograph Society, British, at Royal Society of Arts, W.C.2. 7.15 p.m. A. E. Sarson, P. B. Stock and L. C. Jesty: *A new approach to telecording.*  
Microscopical Society, Royal, Tavistock House South, Tavistock Square, W.C.1. 5.30 p.m. Dr. D. McLean: *Modern metallography and some of its results.*  
Numismatic Society, Royal, at the Society of Antiquaries, Burlington House, W.1. 5.30 p.m. Dr. H. Mattingly: *The revolt of Fregellae.*
- WED. 24 APR. Locomotive Engineers, Institution of, at 1 Birdcage Walk, S.W.1. 5.30 p.m. F. Fancutt: *Painting and cleaning of rolling stock.*

- THURS. 25 APR. Petroleum, Institute of, at 26 Portland Place, W.1. 6.0 p.m. H. E. Pracy: *The place of the chemical engineer in the petroleum refining industry.*
- FRI. 26 APR. Mechanical Engineers, Institution of, 1 Birdcage Walk, S.W.1. 6.0 p.m. A. Dyson, L. J. Richards and K. B. Williams: *Diesel engine lubricants—their selection and utilization, with particular reference to oil alkalinity.*

#### OTHER ACTIVITIES

- NOW UNTIL TUES. 7 MAY. Imperial Institute, South Kensington, S.W.7. Exhibition: *Paintings by Albert Tucker.*
- NOW UNTIL FRI. 31 MAY. Royal Society of Health, 90 Buckingham Palace Road, S.W.1. Exhibition: *Atoms and health.*
- MON. 15 APR. UNTIL SUN. 21 APR. Imperial Institute, South Kensington, S.W.7. Films: *Rhodessa spotlight; The white continent; Robert Smith—apple-grower.*
- MON. 22 APR. UNTIL SUN. 28 APR. Imperial Institute, South Kensington, S.W.1. Films: *The world from the air; Antarctic vigil; Adelic penguins.*
- MON. 15 APR. UNTIL SAT. 4 MAY. Design and Industries Association, at 13 Suffolk Street, Haymarket, S.W.1. Exhibition: *Make or mar*